The RUBBER AGE

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Balloon Tire Standardization Settles On Eighteen Sizes

Simplified List of Balloon Tire Sizes Announced by National Automobile Chamber of Commerce as Having Approval of Members for Their 1929 Requirements—New Marking Scheme Adopted—Big Savings Seen for Manufacturers and Dealers--Work To Be Continued

AFTER virtually years of effort, the tire and automotive industries have gotten together on a tire size simplification program which will mean a reduction of 25 per cent in the number of sizes of balloon tires used on new automobiles. For their 1928 models the automobile manufacturers required 24 sizes of balloon tires; the new program, which will be effective with the introduction of 1929 models, calls for only 18 sizes, a list of which is given on this page. The range covers four rim diameters, from the 18-inch to the 21-inch, and eight cross sections, from the 4.50 inch to the 7.00-inch.

The Rubber Association of America, Inc., the National Automobile Chamber of Commerce, the Tire and Rim Association and the Society of Automotive Engineers have all been active, particularly within the last six months, in trying to work out a program to which all automobile builders would agree to adhere. A preliminary program calling for 17 sizes was agreed upon at a meeting in March and it was thereafter submitted to the members of the N. A. C. C., the membership of which includes practically every American automobile manufacturer with the exception of the Ford Motor Company. The retention of one more tire, the 5-50-inch for the 18-inch rim, proved necessary and after that alteration was agreed to, the N. A. C. C. was able to announce the program as completely accomplished. There is nothing mandatory about it, but the approval which the N. A. C. C. has received from its members is virtually a guarantee that they will be able to satisfy their 1929 requirements from the new and abbreviated list.

The first 1929 model automobiles will probably be brought out by the middle of the summer and all of them will be on the approved tire sizes. The only obvious difference will be the marking of the tires for it has been decided to simplify the marking of the sizes on the tires to show, first, the cross-section of the tire, followed by the diameter of the rim. For example, the 31 x 6.00 will be known in the future as the 6.00-19. The new designation will appear on the tire, but immediately below it, in half-size letters, will be shown the old size. After a short time, when it is felt that the motoring public has become accustomed to the new marking system, the half-size letters will be dropped and only the new designation will be shown.

The new system of marking the sizes is regarded as much more intelligent than the old since each designation will more nearly and definitely state the truth. Following the canvass of the sentiment of their members, the N. A. C. C. reported that the automobile manufacturers had no objections to the new size designations, although some considered the action of the old name of the tire to be unnecessary and disfiguring. The majority, however, shared the opinion that such a scheme would help avoid confusion on the part of motorists and car and tire dealers. It is regarded as only a temporary expedient until the new marking becomes generally understood.

From the standpoint of reducing the number of sizes of balloon tires which manufacturers must make and dealers must stock, there will, of course, be no immediate benefit from the adoption of a standard list of sizes. But with all new production for 1929 and thereafter specifying sizes within the abbreviated list, there will finally be only these sizes for passenger cars which will have to be made and stocked.

None of the parties concerned with the simplification work feel that the ultimate reduction has been made. A reasonable goal for the future is perhaps 10 sizes, possibly 12, but no more should be required to take care of all models and weights of passenger automobiles. It is recognized, however, that a very good start has been made in the right direction and that a 25 per cent reduction in the number of sizes is a remarkable showing for the first year.

Year after year it is expected that committees from the various organizations will get together to stifle any effort to add new sizes unless some old size can be dropped at the same time. Furthermore, it is believed that gradually certain sizes will be found falling into disuse to such an extent that an agreement can be reached for their total elimination.

Both Ford and Chevrolet are now using the 30 x 4.50 tire (to be known hereafter as the 4.50-21) but it is known that a tire of slightly larger cross-section would be more suitable. It is regarded as likely that a new size might accordingly come

APPROVED BALLOON TIRE SIZES FOR 1929

New Marking	Present Marking	Rim Section Width	Maximum Tire Width On Rim
4.50-21	30x4.50	2.75 in.	4.75 in.
4.75-19	28x4.75	4 in.	4.85 in.
4.75-20	29x4.75	4 in.	4.85 in.
5.00-19	29x5.00	4 in.	5.15 in.
5.00-20	30x5.00	4 in.	5.15 in.
5.25-18	28x5.25	4 in.	5.35 in.
5.25-19	29x5.25	4 in.	5.35 in.
5.50-18	28x5.50	4 in.	5.60 in.
5.50-19	29x5.50	4 in.	5.60 in.
5.50-20	30x5.50	4 in.	5.60 in.
6.00-18	30x6.00	4½ in.	5.95 in.
6.00-19	31x6.00	4½ in.	5.95 in.
6.00-20	32x6.00	4½ in.	5.95 in.
6.50-18	30x6.20	4½ in.	6.40 in.
6.50-19	31x6.20	4½ in.	6.40 in.
6.50-20	32x6.20	4½ in.	6.40 in.
7.00-18	30x6.75	5 in.	6.90 in.
7.00-20	32x6.75	5 in.	6.90 in.

about, but if it did the 4.50-21 would probably then be dropped.

The six sizes which appeared in the 1928 list, but which do not appear in the 1929 line-up are as follows: 30 x 4.75, 31 x 5.00, 30 x 5.25, 31 x 5.25, 33 x 6.00 and 33 x 6.20.

The marking of the balloon tires in the new way will necessitate the re-cutting of the molds now in use in the tire factories. It is understood that some of the companies have already begun such work in anticipation of orders from automobile companies who will be bringing out 1929 models reasonably soon. Since there is no actual change in 17 out of the 18 cases, the tires with the new markings can be used on automobiles now running, just as well as tires marked in the old way.

Great credit for the successful termination of the effort to reduce the number of balloon tire sizes appears to be due to the original equipment committee of the Rubber Association. On this committee are representatives of the principal tire companies which supply original equipment tires for the automobile manufacturers, the total number being ten or twelve. The committee has been interested for years in reducing the number of sizes they were obliged to supply and has accordingly been eager to meet any overtures of the automobile men.

Department of Commerce Has Rendered Assistance

Many of the simplification problems of American industries have been solved principally through the intervention and aid of the Department of Commerce which, under Secretary Hoover, has stood ready to act as intermediary. In the case of tire size simplification, however, the Department of Commerce has played only a minor role since the tire and automotive interests found themselves rapidly nearing agreement once negotiations were well started.

Eventually tire size simplification will mean a saving of many millions of dollars to tire manufacturers and dealers. In the factory a smaller assortment of molds will be required and it will not be necessary to maintain such large stocks of finished tires, both in the factory and in branch warehouses. The dealer's problem of stocking sufficient tires to take care of the demand will, of course, be greatly simplified. Better service to motorists will result since with the smaller line many dealers will be enabled to offer a complete range of sizes, whereas that was impossible for many dealers before. As mentioned above, these benefits will not be immediately apparent, but will accrue slowly during the next few years as new automobiles replace those now running.

The Rubber Association contemplates that the tire and automobile committees concerned will be called upon to meet at various times during each year so that the movement toward resisting the introduction of new sizes and getting rid of still more sizes will not be allowed to lapse. Since all automobiles are now being brought out on balloon tires, the high pressure tire is rapidly giving way in the replacement markets as it has in the automobile factory. Within a few years the high pressure type will have largely eliminated itself just as the old clincher tire was superseded by the straight-side. If, when this process has worked itself out, the number of balloon tires has been decreased instead of being increased, the benefits to the entire automotive and tire trades will be enormous.

Synthetic Rubber Rumors Again Afloat

GERMAN activities in the production of synthetic rubber are again the subject of persistent rumors, but the majority of them seem to have been founded on very scant evidence. Two patents, however, have recently been taken out by the German Dye Trust and are indicative of the activity in this direction. In one (B. P. 283,840), it is stated that hydrocarbons suitable for the manufacture of synthetic rubber, such as isoprene and butadiene, are emulsified and then polymerized in the presence of oxygen or of substances yielding oxygen. The medium in which emulsification takes place is an inert aqueous fluid containing soaps, albuminous substances, saponin, or other of the usual emulsifying agents. Persalts, such as sodium perborate, are employed to accelerate polymerization.

In the second specification (B. P. 283,841), it is claimed that the hydrocarbons are polymerized by treating with an alkali metal, such as sodium or potassium, in an atmosphere of hydrogen, nitrogen or carbon dioxide, in the presence of an organic hydroxy compound. Thus, dried isoprene is mixed with starch or glycerine and sodium and agitated at 60 degrees C. in an atmosphere of carbon dioxide. These patents, though reminiscent of earlier patents on the subject, are indicative of the active research which is being carried out in Germany.

A Quarter Mile of the Rubber Industry

A COMPLETELY equipped factory extending a quarter of a mile in length and 400 feet wide, in operation within seven months from the time construction was first started, is the latest pride of the B. F. Goodrich Company. The opening of this new Pacific coast factory at Los Angeles last month was the occasion for

B. F. Goodrich Plant at Los Angeles

appropriate ceremonies which were attended by the executives from the home office in Akron and by many prominent business men and state officials in California.

The factory is a complete unit within itself and is the last word as a model of efficiency. A Banbury mixer capable of producing 110,000 pounds of compounded rubber every 24 hours is the central feature of the mixing department. The creel room has 24,000 spools for the manufacture of weltless cord fabric and can produce 100 yards per minute. A centralized control system provides temperature, pressure and power control for the entire plant from one operating room.

When in full operation the capacity of the plant will be approximately 5,000 tires and 7,500 inner tubes per day. At the present time the factory employs 1,200 people and this number will be steadily increased as production is advanced.

Merger of Machinery Makers Contemplated

Definite confirmation is expected shortly of the report which has been circulating throughout the industry to the effect that four or five of the well-known manufacturers of rubber machinery and shop equipment in the Akron and Eastern districts are planning a merger of their interests to secure release from the highly competitive conditions in this field. The names of the concerns involved in the merger cannot be disclosed at this time, but an announcement will be made shortly.

RUBBER PLANTING—
European *versus* Native Methods

A Comparison of Total Costs and Annual Returns—Although Native Plantings May Have a Much Shorter Life, the Low Initial Investment Causes Them To Show Quicker Profits—Compromise Between the Two Suggested

By D. M. MATTHEWS
Professor of Forestry Management, University of Michigan

THERE can be no question that European plantations are much longer lived than native plantings, but the exact economic life of either kind of planting cannot be definitely determined. Many European planters are not at present writing off their plantations, while others are depreciating on a basis of 30 years' tapping life. There is every reason to believe that this is adequate depreciation.

Native plantations are believed to decline rapidly in production after the tenth year from planting. This is probably true when very destructive methods of tapping and little care of the plantation obtain. It does not follow from this that with reasonable care in tapping and upkeep native plantations could not be kept in satisfactory yield much longer.

Number of Trees Per Acre

The present practice is for the European to plant about 150 trees per acre and gradually reduce by thinning to less than 100 trees per acre. This leaves wide open spaces between the trees, which have to be kept free of grass and jungle growth until the fourth or fifth year, when the canopy closes. This is an expense.

The native plants on a spacing of 8x8 or 10x10 feet, getting 450 to 650 trees per acre. If wider spacings are used, catch crops are run between the trees until the crowns close. In any event, the cost of upkeep which obtains in European plantations is either not undertaken or is avoided.

Yields and Costs Compared

In the following discussion a very conservative yield has been assumed for native plantings. Good authorities claim that annual yields of close to 1,000 pounds per acre for native plantings are possible. The figures used are from *The Plantation Industry in the Middle East*, by D. M. Figart, pp. 297-298. It has further been assumed that the native plantations decline so in yield after the tenth year from planting that it would be better business to abandon them and plant new areas. This is by no means an established fact, and it is certain that with care—the care that European management would supply if their methods were modified along the lines that natives adopt—the life could be prolonged considerably beyond this time, and possibly put on a parity with present European plantations.

However, if we assume that the native planting fails in the tenth year, then, in order to have a fair comparison with European plantations, we must compare the financial returns of the native planting at the end of this period with that of a European plantation in the tenth year. This can only be done by the use of compound interest, and, although the European planters have disregarded the interest factor in their calculations and the natives would not know what it meant, it is the only fair way of arriving at a comparison. As money is more costly in the Middle East than here, a rate of 8 per cent has been used in computing the financial position of the two properties ten years after planting. A net return of 20 cents per pound of rubber has been used for both areas. This is based on a market price of 33 cents* per pound, with costs of upkeep, tapping, manufacturing, general charges and export taxes figured

*These estimates were prepared before the recent decline in the price of rubber but the principle involved is unchanged.

View on a Native Plantation in Borneo. Children are Commonly Called Upon to Assist in Tapping. This Clean Appearing Estate is Typical of Many Native Areas

Native Plantation on Low Ground. Note the Deep Drainage Ditch in the Right Foreground. Such Improvements are Common in Some Regions

at 13 cents. This is somewhat unfair to the native, as his costs could hardly amount to half of this, but it allows for the fact that he may sell less advantageously, and so get a lower gross return than the European.

Table No. 1 indicates total net returns, exclusive of capital charges, prolonged at 8 per cent to the tenth year.

TABLE NO. 1—COMPARATIVE TOTAL NET RETURNS

Age of Trees Years	Native Plantations Pounds per Acre	Current Receipts U. S. Cy.	Value in 10th Year, 8%	European Plantations Pounds per Acre	Current Receipts U. S. Cy.	Value in 10th Year, 8%
4	100	$ 20	$ 31.80			
5	200	40	58.75	60	$ 12	$ 17.65
6	300	60	81.80	180	36	49.00
7	400	80	100.80	240	48	60.50
8	300	60	70.00	300	60	70.00
9	250	50	54.00	350	70	75.60
10	200	40	40.00	400	80	80.00
Totals	1,750	$350	$437.15	1,530	$306	$352.75

Table No. 1 is merely a comparison of total cumulative yields in pounds and dollars and cumulative yields in dollars when compounded at 8 per cent. From a true comparison we must take into account the capital expenditure which has made this possible, and also the future of the two properties.

The European Property

On page 52 of *Plantation Rubber Industry in the Middle East*, Figart gives the yearly apportionment of capital expenditure for his estimate of capital costs for European estates in Malaya and Sumatra. We must carry these costs to the tenth year at compound interest of 8 per cent to get the correct capital cost at that time. This is done in Table No. 2.

CUMULATIVE INVESTMENT IN EUROPEAN ESTATES

Expenditure first year	$170	at 8 per cent for 9 years		$340.00
Expenditure second year	35	at 8 per cent for 8 years		64.80
Expenditure third year	45	at 8 per cent for 7 years		77.10
Expenditure fourth year	30	at 8 per cent for 6 years		47.60
Expenditure fifth year	40	at 8 per cent for 5 years		58.70
Expenditure sixth year	30	at 8 per cent for 4 years		40.90
Totals	$350			$629.10
Net returns at the end of the 10th year				$352.75
Residual investment at 10th year				$276.35

From this time on—probably for at least 30 years—the European estate will produce at least 400 pounds of rubber per year, and net a minimum revenue of $80 per acre per year. This, on a residual capital investment of $276.35, amounts to 28.9 per cent per annum. If it is decided to amortize the property over a 30-year period, this will still leave a return of slightly over 25 per cent per annum.

To sum up, then, the European estate, if the management decides to charge its operation with 8 per cent for the use of the money invested up until the tenth year, and refrains from dividends until after that year, will enter on the eleventh year in a position to pay 25 per cent per annum on the investment and retire all its capital at the end of the fortieth year after the enterprise started. The above calculation must, of course, be modified if any other net returns for rubber are anticipated, or as it becomes possible to produce greater yields than 400 pounds of rubber per acre per annum.

The Native Property

The greatest difficulty in making out a case for the native property on all fours with the calculation for the European property lies in assessing the right capital investment. Natives keep no costs. The property is the result of their own labor, and they themselves probably consider the cost value to be nil. However, it is known that they do not trouble to clean clear, their land costs them less than the European estate, they are not concerned with soil conservation or the construction of permanent buildings, and have no general charges to carry. From the list of items making up the capital costs of European estates referred to above, it would seem fair to select the following as applying to the native estate:

Item 3—Felling	$12	Straits Currency
Item 4—Clearing and burning	40	Straits Currency
Item 8—Planting	10	Straits Currency
Item 15—Cost of land (nominal)	8	Straits Currency
Total	$70	Straits Currency, or say $40—U. S. currency

As money at compound interest of 8 per cent doubles itself in nine years, the capital investment of the native at the end of the tenth year would amount to $80, at which time his net returns, also computed at compound interest, would be $437.15. In other words, the native would have his capital back, plus interest at 8 per cent for the period and a surplus of $437.15, minus $80, or $357, in hand, as against the European estate's residual invested capital of $276 still tied up, but which, it is true, is now in a position to pay 25 per cent, plus depreciation.

The above is hardly a comparison, but rather a contrast. For as one property is going out of business, the other is just getting into its stride. However, we must consider the fact that the native, if he does abandon his small planting of rubber in the tenth year, will, in all probability, plant up a new area, and that there is nothing to prevent his carrying such a procedure on permanently as long as he is able to control sufficient area to permit a modified rotation of area. He can, in the eleventh year, replant an equal area, again at a cost of $40. Therefore, he can permanently stay in the business, and he can do so after paying off his interest at 8 per cent on his original capital by re-investing $40, which, as we have seen, will in ten years grow to the sum of $397, and again pay him interest on his $40 capital at 8 per cent. The per cent that he makes on this investment of $40 over and above what he charges himself for interest at 8 per cent is, by the usual formula of Cn/Co, $397/$40, which indicates that his capital multiplies itself 9.91 times in ten years, which corresponds to an interest rate of 25.8 per cent, is over and above the 8 per cent already charged off. Therefore, the total profit on a native's investment, from the very first day of investment, is 33.8 per cent, as against a return on the European's much larger investment of only 25 per cent, which cannot be considered to come at a steady rate until after the tenth year of the enterprise.

The above comparison has not been carried out for the purpose of discouraging further investment of capital in the rubber plantation industry, nor must it be understood as an argument advocating the placing of reliance for our future supplies of rubber on native initiative. The purpose has been rather an attempt to prove that the solution of the problem of a continuing and adequate supply of rubber for the world's needs at reasonable prices may not lie altogether along the line of intensive plantation practice, leading to higher and higher yields per acre (which can only be obtained at high costs of capital and maintenance), but that the obvious financial success of the native, planting in an admittedly crude and careless manner, points the way to a compromise between the two extremes which may be the real economic solution.

Official Rubber Type Samples

OFFICIAL type samples of 13 grades of crude rubber are now being distributed to manufacturing members of the Rubber Association of America, Inc., by that organization. In placing orders hereafter, as well as in checking the quality of rubber delivered, the factories will be guided principally by the new samples.

Each sample is made up in book form, measuring about five inches by nine inches. Each book contains ten pieces and tenders must conform to the average quality of the pieces. The samples have been officially sealed by the Association. Sets of the samples have been sent to appropriate centers in the primary and secondary rubber markets where they will guide suppliers in meeting the specifications of the purchasers. Both the Rubber Exchange of New York and the Rubber Trade Association of the same city have sets of the samples. Others are in London, Amsterdam, Colombo, Singapore, Penang and other cities.

The official type samples include four grades of ribbed smoked sheets, four of pale crepe (No. 1 and No. 2, thick and thin), two of brown crepe, and three blanket grades, designated as "B," "C," and "D." No. 1 Brown Crepe was known heretofore as Light Clean Thin Brown and No. 2 Brown Crepe as Clean Thin Brown. The blanket grades were formerly described as Nos. 2, 3 and 4 Amber. The official type samples will cover all rubber trading with the exception of Selected Estate grades and Roll Brown.

The specifications for No. 1 Ribbed Smoked Sheets and Nos. 1 and 2 Thin Crepe include the requirement that packages, shipped from the primary markets after June 1, 1928, shall be wrapped on all sides with equal quality rubber.

Survey Shows Tire Dealers' Spring Stocks at Record Peak

Stocks Average 81.2 Casings and 123.4 Inner Tubes per Dealer—Survey By Department of Commerce Based on 30,733 Replies to Questionnaire—Detailed Figures By States

THE outstanding feature of the final report of dealers' stocks of automobile tires in the United States, as of April 1, is the increase in the average number of casings and inner tubes in the hands of dealers, as compared with the average on April 1 last year. The final average number of casings per dealer this year was 81.2, as compared with 70.6 a year ago. A comparison with the survey of dealers' stocks taken last October, when the average number of casings per dealer stood at 57.6, is not a fair one, in view of the difference in seasonal buying. Spring inventories are naturally higher than fall stocks, but it is of interest to note the big jump in stocks which has taken place in the six months since October 1.

The report, which is the semi-annual result of a carefully conducted survey by the Rubber Division of the Department of Commerce, also reveals the same tendencies in the retail trade as were noted in the report of last October, which was analyzed in the November 10 issue of THE RUBBER AGE, namely, the number of dealers stocking less than 25 tires is lessening, and the movement among dealers to concentrate on selling one make of tire is increasing. A total of 16,604 dealers out of 36,865 reporting, or 45.05 per cent, were stocking less than 25 tires on April 1, 1927, while on April 1 of this year this number had declined to 12,563 dealers out of a total of 30,974, or 40.56 per cent. Dealers handling only one make of tire were 47.9 per cent of the total number of dealers reporting on April 1, 1927, but this figure has now increased to 54.2 per cent.

The survey as conducted by the Department of Commerce is based on replies to questionnaires which are sent to every tire dealer in the country. Last year, 36,865 dealers replied. This year the number has fallen to 30,974. Whether this indicates an actual decline in the number of dealers throughout the country is not commented upon in the report, but it is possible that such is the case, as the retail tire trade has undergone the usual process during the year of weeding out the weaker and less successful concerns. In the survey of October 1, 1927, the number of dealers reporting was 33,548.

Like the automobile casing stocks, inner tube stocks also

DEALERS' STOCKS OF AUTOMOBILE TIRES

	April 1, 1928			April 1, 1927			April 1, 1926			April 1, 1925		
	Number	Dealers Reporting	Average per Dealer	Number	Dealers Reporting	Average per Dealer	Number	Dealers Reporting	Average per Dealer	Number	Dealers Reporting	Average per Dealer
Total casings	2,514,112	30,974	81.2	2,604,432	36,865	70.6	2,056,472	32,184	63.9	2,026,356	32,592	62.2
Balloon casings (alone)	1,008,223	22,039	45.7	868,312	24,431	35.5	399,808	18,284	21.9	144,433	9,745	14.8
Inner tubes	3,816,169	30,933	123.4	4,370,989	36,146	120.9	3,839,799	32,112	119.6	3,317,104	32,477	102.1
Solid and cushion tires	37,873	1,403	27.0	44,868	1,817	24.7	50,230	1,866	26.9	47,958	2,381	20.1

Dealers' Stocks of Automobile Tires by States, April 1, 1928

	Automobile Casings			Inner Tubes		
	No. of Dealers Reporting	No. of Tires on Hand	Average No. per Dealer	No. of Dealers Reporting	No. of Tubes on Hand	Average No. per Dealer
NEW ENGLAND						
Maine	464	28,905	62.3	464	40,328	86.9
New Hampshire	217	13,836	63.8	217	21,955	101.2
Vermont	184	10,723	58.3	184	19,321	105.0
Massachusetts	861	83,313	96.8	861	133,869	155.5
Rhode Island	130	8,899	68.5	130	12,583	96.8
Connecticut	324	24,204	74.7	324	38,200	117.9
Total	2,180	169,880	77.9	2,180	266,256	122.1
MIDDLE ATLANTIC						
New York	1,915	171,779	89.7	1,915	258,448	134.9
New Jersey	594	51,154	86.1	595	85,253	143.3
Pennsylvania	2,701	177,176	65.6	2,701	286,436	106.0
Total	5,210	400,109	76.8	5,211	630,137	120.9
EAST NORTH CENTRAL						
Ohio	1,811	141,892	78.4	1,811	122,368	67.6
Indiana	1,057	84,804	80.2	1,057	130,457	123.4
Illinois	1,532	139,409	91.0	1,534	211,748	138.0
Michigan	852	85,110	99.9	1,057	135,984	128.6
Wisconsin	1,034	97,552	94.3	1,034	151,890	146.9
Total	6,286	548,767	87.3	6,493	752,447	115.9
WEST NORTH CENTRAL						
Minnesota	900	76,270	84.7	900	128,090	142.3
Iowa	883	79,449	89.9	1,072	130,090	121.4
Missouri	1,064	105,861	99.5	1,018	153,657	150.9
North Dakota	433	25,743	59.5	433	46,094	106.5
South Dakota	372	20,642	55.5	372	39,553	106.3
Nebraska	536	35,847	66.9	536	59,103	110.3
Kansas	1,028	66,507	64.7	839	100,106	119.3
Total	5,216	410,319	78.7	5,170	656,693	127.0
SOUTH ATLANTIC						
Delaware	56	5,126	91.5	56	9,698	173.2
Maryland	382	35,705	93.5	382	56,483	147.9
District Columbia	46	2,629	57.2	46	5,444	118.3
Virginia	807	53,503	66.3	807	70,492	87.4
West Virginia	467	29,973	64.2	467	45,811	98.1
North Carolina	540	41,664	77.2	540	69,557	128.8
South Carolina	275	13,180	47.9	275	28,072	102.0
Georgia	414	30,503	73.7	414	63,475	153.5
Florida	300	39,343	131.1	300	58,678	195.6
Total	3,287	251,626	76.6	3,287	407,710	124.0
EAST SOUTH CENTRAL						
Kentucky	401	32,773	81.7	401	59,971	149.6
Tennessee	339	33,853	99.9	339	60,343	178.0
Alabama	352	31,060	88.2	352	54,185	153.9
Mississippi	296	21,349	72.1	296	37,955	128.2
Total	1,388	119,035	85.8	1,388	212,454	153.1
WEST SOUTH CENTRAL						
Arkansas	350	36,311	103.7	350	40,568	115.9
Louisiana	300	20,179	67.3	300	44,455	148.2
Oklahoma	567	66,744	117.7	567	101,481	178.9
Texas	1,327	110,938	83.6	1,327	196,025	147.7
Total	2,544	234,172	92.0	2,544	382,529	150.4
MOUNTAIN						
Montana	310	23,897	77.1	356	43,925	123.4
Idaho	229	13,290	58.0	229	21,153	92.4
Wyoming	122	6,869	56.3	122	11,058	90.6
Colorado	410	22,798	55.6	410	36,473	89.9
New Mexico	163	8,219	50.4	163	13,109	80.4
Arizona	165	16,021	97.1	165	19,523	118.3
Utah	219	16,074	73.4	219	22,014	100.5
Nevada	58	3,799	65.5	58	5,434	93.7
Total	1,676	110,967	66.2	1,722	172,689	100.3
PACIFIC						
Washington	728	49,851	68.5	728	73,109	100.4
Oregon	439	28,685	65.3	439	43,871	99.9
California	1,750	164,464	94.0	1,501	136,278	90.8
Total	2,917	243,000	83.3	2,668	253,258	94.9
Unallocated	270	26,237	97.2	270	81,996	303.7
Grand Total	30,974	2,514,112	81.2	30,933	3,816,169	123.4

show an increase over April, 1927. The average number of inner tubes in dealers' hands this year was 123.4, as compared with 120.9 last year. This is the highest average noted since these surveys were started, in 1924.

The increasing popularity of the balloon casing is readily seen by the figures. Out of the total average of 81.2 casings this year, 45.7 are reported as of the balloon type, as compared with 35.5 out of the total average of 70.6 reported in April, 1927. The number of dealers handling solid and cushion tires has declined, as well as the actual number of such tires in the market, but the average number per dealer has shown an increase from 24.7 in 1927 to 27.0 this year.

The largest of the accompanying tables shows the average tires per dealer in each state. The sections of the country where stocks are high are noticeable, and somewhat surprising. Florida tops the list with an average of 131.1 per dealer. Oklahoma has 117.7 per dealer, while the average in Arkansas stands at 103.7. The generally high average through the entire list of states indicates that stocks are being well maintained, and only in a few instances is there any sign of depleted stocks.

One of the most interesting tabulations made from the report is the accompanying table, showing the number of makes of tires handled, which reveals the trend toward the exclusive representation of one make, as compared with the retail tire trade of a few years ago, when dealers were accustomed to stocking several different lines. On April 1, 1926, a total of 42.0 per cent of all the dealers reporting were handling one make, and 37.5 per cent were handling two makes. Last year the percentage handling one make increased to 47.9, while 37.5 per cent still handled two makes. This year the percentage of dealers confining their activities to one make again advanced to 54.2 per cent, while the number handling two makes declined to 33.0 per cent.

NUMBER OF MAKES OF TIRES HANDLED

	April 1, 1926		April 1, 1927		April 1, 1928	
No. of Makes	No. of Dealers	Per Cent of Total	No. of Dealers	Per Cent of Total	No. of Dealers	Per Cent of Total
One	12,994	42.0	17,594	47.9	16,663	54.2
Two	11,576	37.5	13,790	37.5	10,153	33.0
Three	4,317	14.0	3,779	10.3	2,757	9.0
Four	1,402	4.5	1,078	2.9	833	2.7
Five	465	1.5	361	1.0	234	.8
Six	170	.5	148	.4	93	.3
Total ...	30,924	100.0	36,750	100.0	30,733	100.0

On the questionnaire sent to dealers are included a number of general questions which form the basis for developing interesting information regarding the trade. One of the questions asked for the first time this year pertained to the sale of tires on the installment payment plan, and developed the fact that a total of 6,080 dealers out of 33,148 from whom reports were received, or 18.3 per cent, are now selling tires in that way. Questions have also been asked relative to the dealer's business, what other products he sells and the classes of servicing which he renders. The tabulation of the replies indicates that 37.8 per cent of the total number of dealers sell automobiles in conjunction with their tire business, and 66.9 per cent also handle gasoline and oils. Dealers who render repair service on inner tubes were 58.1 per cent of the total, while those having vulcanizing equipment for tire repairs represent 12.9 per cent. A total of 60.2 per cent sell tire repair materials.

Tapping Experiments in Haiti

A COMPREHENSIVE report on tapping experiments on 95 Hevea trees at Bayeux, in northern Haiti, has been published by the U. S. Department of Agriculture as Technical Bulletin No. 65. The experiments covered 11 months, from September, 1924, to the end of August, 1925, tapping being suspended during July. Individual tree yields were carefully kept in cubic centimeters of latex. The trees were approximately 21 years old when tapping was begun and had been untapped for a number of years.

The trees were tapped daily in September, 1924, with one right cut on one-third of the circumference, the lower end of the cut being one foot from the ground. After October 1, 1924, the trees were tapped on alternate days. The total yield of dry rubber for the 11 months was 326.9 pounds. Since the 95 trees at Bayeux were scattered over approximately two acres and were interplanted with cacao, an exact comparison with yields per acre in the Middle East is difficult, but on the basis of 100 trees per acre, the average tree yield in Sumatra would seem very similar to the yields at Bayeux.

Quarterly R. A. A. Figures Show Gains

THE statistics on the rubber manufacturing industry in the United States covering the first quarter of the current year, compiled by the Rubber Association of America, show an encouraging increase in the consumption of crude rubber from both the amount used in the industry in the corresponding quarter of 1927 and in the last quarter of the past year. Stocks of crude rubber on hand and rubber afloat to the United States also increased. Sales of manufactured rubber goods, however, in dollar value were only slightly over the figure for the last quarter and were under the total for the corresponding first quarter last year, reflecting lower unit selling price in rubber goods but a higher volume of unit sales.

The feature of the latest report of the Association is the listing of several new classifications in the detailed figures covering sales and consumption. Quarterly sales figures are now given for the following new classifications: airplane casings and tubes, stationers' rubber goods, bathing apparel, rubber clothing, automobile fabrics and other rubberized fabrics and sporting goods, toys and novelties. Consumption figures of crude rubber used in the separate manufacture of each of these classifications are also now a feature of the report.

The total sales value of rubber manufactured products invoiced for the first quarter of the present year was $256,927,000 or only $924,000 over the value of such sales for the final quarter of last year, which incidentally was the lowest quarter, from the standpoint of sales value, within the last two and a half years. A substantial gain was made in the sales of tires and tire sundries during the quarter but the figure of $179,615,000 was still lower than for the corresponding period in 1927 which totaled $187,650,000. As regards sales of other rubber goods, the situation was exactly the reverse.

A total of 95,273 tons is recorded as the amount of crude rubber consumed by the domestic industry during the first quarter. This is an increase of approximately 20,000 tons over the consumption during the last quarter and is also a gain of about 4,000 over the first quarter of last year. Here again the increase is largely in the manufacture of tires and tire sundries rather than in other rubber goods.

Both the consumption and production of reclaimed rubber increased and showed a higher tonnage in each instance than in any of the quarterly periods listed. This was equally true of the consumption of scrap rubber. Inventories of both scrap and reclaimed rubber, however, dropped off slightly. A total of 51,112 tons of reclaimed rubber was produced and 39,920 tons consumed.

The Rubber Association figures on crude rubber consumption and the total sales value figures are estimated to represent 92 per cent for the entire industry in the United States. These figures are brought up to represent 100 per cent in the statistical tables in this issue of THE RUBBER AGE.

Hand Engraving Of Rubber For Printing Or Artistic Purposes

Modern Printing Process Involves Direct Hand Engraving of Rubber—Rubber Also Attracts the Artist-Engraver Like Wood or Linoleum

Reproduction of the Engraving "Montmartre," done in Rubber by Wilbur Peat, director of the Akron Art Institute

THE printing on a large scale of papers and cardboards for wrapping and package purposes requires the use of suitable large-capacity machines. Until recently, a small number of machines were in use which printed a few classical designs, usually in one color, mostly of the type knows as "imitation wood cuts." These designs, which now seem quite flat in comparison with the bright colors to which we are accustomed, were reproduced almost exclusively by zinc engraving by molding into rubber sheets the designs etched into zinc by means of acids. The molded sheets were then glued on to the printing roll. This process always resulted in a slight marking of the paper or board by the lines along which neighboring sheets touched, thus marring the work to a certain extent. Moreover, the relief obtained on the rubber could not be greater than the depth of the zinc engraving, which, at the most, is of the order of 6 to 8 tenths of a millimeter, as a deeper etching blurs the design.

The linings thus obtained are fairly expensive if the design is changed at all frequently: moreover, the small amount of relief obtainable makes them wear down quite rapidly, so that in order to obtain a high output from the machines the roll linings must be replaced very often.

A modern and entirely different conception of this work, involving the direct engraving of rubber by hand, has recently gained favor. This method has been explained by J. Rollin in the French journal, *Le Papier*, from which an English translation has been prepared by *Dyestuffs*. In so far as the engraving of rubber printing rolls is concerned, the present article is based chiefly on M. Rollin's explanation.

Designs Engraved Directly Into the Rubber

Under the new method, large printing designs, instead of being molded into rubber sheets as heretofore, are engraved directly into the rubber by means of an engraving tool. Of course a special grade of rubber must be used, a compromise between the hardness required to enable it to be engraved and the softness essential to good printing qualities. By direct engraving of the rubber a very high relief, of the order of 2 or 3 millimeters, can be obtained, so that the service obtainable from such rolls is very much greater than that from rolls lined according to the old process. The life of the rolls is proportional to the depth of the engraving, and in practice is at least three times as long as the life of the old rolls.

For printing in several colors, one roll is used per color, and all the rolls used for printing a given design must naturally be of absolutely the same diameter. The engraving studio entrusted with the reproduction on rubber of a design in several colors must first bring it to the proper dimensions, that is, bring it to such a scale that the pattern will be reproduced an exact number of times both along the circumference and across the width of the roll.

When in use, the several rolls must register with one another, so that each color will be printed in its right place on the paper, without overlapping any other color. The impression obtained in this way by each roll is absolutely continuous, contrary to what took place by the older process.

Machine for Printing in Several Colors

A machine for printing in several colors consists of a number of rubber covered rolls. First of all, there are the printing rolls, which are the essential part of the machine and the function of which consists in applying to the paper or cardboard the colored inks, which are fed to them by means of other rubber covered rolls, called "feeding" or "inking" rolls. The covering of the latter is of very soft rubber. For each printing roll there are three inking rolls; the first inking roll rotates partly immersed in the color trough; it is in contact with the second inking roll, which takes up the ink, spreads it out evenly, and transfers it to the third inking roll; the latter is in direct contact with the printing roll, on which it deposits the ink very uniformly. The amount of ink thus transferred to the printing roll can be adjusted by the relative pressures between the several rolls.

The paper or board passes successively between each printing roll and a large rubber covered drum known as the bed roll.

A machine for printing in four colors therefore comprises, in addition to the bed roll, a total of 16 rubber covered rolls.

In going through the machine, the paper passes over the bed roll, all the printing rolls simultaneously apply the several colors, and the paper is reeled as it leaves the machine. Cardboard passes through in the same way, and on coming out it can be either reeled or cut into sheets of the required size in the usual manner. Paper or cardboard can be

passed through at a speed of about 20 to 30 meters a minute, representing an output of something like 10,000 meters per machine per 8-hour day.

The part of the machine which has the greatest influence on the final results of the operation is the printing roll itself, as it is the engraved rubber covering which must give the desired continuous impression. The total thickness of the rubber is about 10 millimeters, and comprises a layer of about 2 or 3 millmeters of ebonite adhering to the metal and about 7 or 8 millimeters of soft rubber.

The latter is engraved directly by means of an engraving tool to a depth which may exceed 2 millimeters. The engraving of the rubber is a delicate operation on account of the softness of the material which gives under the tool. It is carried out by workmen especially trained for the work, and requires extreme care as the least flaw in the engraving necessitates remaking the entire covering. An experienced engraver can cut lines down to 1 millimeter in width but the softness of the material does not allow of making designs finer than 1 millimeter. Practically speaking, this is not a serious drawback as there are innumerable designs that can be made with line 1 millimeter or more in width.

In the case of advertisements, these can be engraved into the roll along with the rest of the design. However, it may happen that certain patterns or trade marks require to be engraved in fine lines which cannot be engraved into the rubber precisely on account of the fineness of the lines. This problem had to be solved, for if the process could have been applied to only a limited number of trade marks it is evident that its usefulness would have been greatly reduced. To overcome this difficulty, hollow medallions are provided in the roll and into these are subsequently molded rubber sheets carrying the required pattern or trade mark. Of course the thickness of the sheet must be exactly the same as the depth of the medallions. These inserts, which must also have a high relief which cannot be obtained from zinc engravings, are prepared by a special molding process from wood cuts. The latter can give a much higher relief which is transferred to the rubber by the molding process.

The use of such inserts has another advantage, as it allows of using the same design for a large number of orders for different customers, the inserts being changed for the orders of the several customers. In this way changing from one order to another entails but a small cost and causes but a slight loss of time.

The inserts are easily glued by means of a rubber solution, and they can be easily removed from the medallions. The tenacity of the glueing is easily adjusted by means of the contraction of the rubber solution, which should be diluted so that the inserts can be easily pulled out without injury, but at the same time adhere sufficiently to prevent their pulling off during the printing. After removal, the inserts are kept for future use in repeat orders from the various customers.

Such inserts can also be used to good advantage in cases where the expense of engraved rolls would be considered too high. A number of inserts could be applied at regularly spaced intervals on a plain, rubber covered roll, and printed as before.

When not in use, the inserts and engraved rubber roll coverings should be stored in a cool place, away from the light, these being the conditions generally recommended for storing rubber goods in general. Inserts or coverings which have been improperly stored are liable to harden on the surface through ageing of the rubber, and will then cause trouble on the printing machine.

Rubber as a medium for the artist-engraver has not been unknown in the past. It still finds favor with many artists who have worked with wood or linoleum. The illustration at the head of this article is a reproduction of an engraving in rubber by Wilbur Peat, an Akron artist who is also the director of the Akron Art Institute. Mr. Peat favors the use of ordinary floor tile for such a purpose. The danger of breakage, which always exists when wood is used, is entirely eliminated in the case of rubber. The artist also finds rubber an easier medium to engrave.

Tire and Tube Production Increases

THE production of automobile casings climbed still higher during March, and exceeded by 500,000 the good record made in February, according to the report of the Rubber Association of America. The output of inner tubes, however, fell off by about the same number. Shipments of both tires and tubes from the factories increased, but inventories still remain high and showed an advance from the February totals. The figures released by the Rubber Association represent 75 per cent of the total industry in the United States, and have been brought up in the following table to equal 100 per cent:

	February, 192			March, 1928		
	Prod.	*Ship.*	*Inven.*	*Prod.*	*Ship.*	*Inven.*
PNEUMATIC CASINGS (*All Figures Represent Thousands*)						
All types	6,819	5,731	12,389	6,363	5,031	11,721
Balloon	4,689	3,957	6,267	4,029	3,333	5,565
High Pressure Cord	2,086	1,737	5,807	2,263	1,660	5,856
High Pressure Fabric	44	37	315	71	38	297
SOLID AND CUSHION TIRES	57	60	209	48	52	209
INNER TUBES						
All types	6,231	5,731	15,573	6,895	5,431	14,650
Balloon	4,911	3,808	7,710	4,296	3,470	6,728
High Pressure	2,220	1,923	8,096	2,599	1,961	7,922

Further detailed comparative tables covering previous months, with year totals, will be found in the statistical section of this issue of THE RUBBER AGE.

April Rim Production Continues High

The output of automobile rims during April did not come up to the high level of production established in March, but was well in excess of the output for April a year ago, and the total production of rims for the four months of the current year is still higher than for the corresponding period of 1927, according to the report of the Tire and Rim Association of America, Inc. The number of rims inspected and approved during April totaled 2,316,324, as compared with 2,420,084 rims in March, and 2,059,868 in April of last year. The total production for the four months of the current year exceeds that of the same period of 1927 by approximately 1,000,000.

RIM SIZE	APRIL No.	1928 %	2 MOS. No.	1928 %
MOTORCYCLE				
24x3	7724	0.3	17172	0.2
26x3	1703	0.1	14476	0.2
28x3	—	—	452	0.0
Total	9427	0.4	32100	0.4
CLINCHERS				
30x3½	11795	0.5	137185	1.7
31x4	52	0.0	1563	0.0
Total	11847	0.5	138748	1.7
18" BALLOONS				
18x3½	—	—	9362	0.1
18x4	124604	5.4	470083	5.6
18x4½	7658	0.3	30843	0.4
18x5	20	0.0	20	0.0
Total	132282	5.7	510308	6.1
18" BALLOONS				
19x3½	286320	12.4	738455	9.3
19x4	200512	8.7	779658	9.4
19x4½	74094	3.2	360592	4.3
19x5	32	0.0	32	0.0
Total	560958	24.3	1878737	23.0
20" BALLOONS				
20x3½	78180	3.4	265087	3.2
20x4	389938	16.8	1313947	15.7
20x4½	11791	0.5	139076	1.7
20x5	50406	2.2	189911	2.3
20x6	5350	0.2	42068	0.5
Total	535665	23.1	1950089	23.4
21" BALLOONS				
21x3½	63059	2.7	226664	2.7
2.75-21-D	629501	27.3	2206433	26.9
21x4	86628	3.7	318266	2.8
21x4½	35356	1.5	184624	2.2
21x5	2554	0.1	5631	0.1
21x6	442	0.0	1385	0.0
Total	817540	35.3	2943003	34.7
22" BALLOONS				
22x3½	—	—	1509	0.0
22x4	100	0.0	856	0.0
22x4½	—	—	640	0.0
Total	100	0.0	3005	0.0
HIGH PRESSURE				
30x3½-23	2522	0.1	16439	0.2
31x4 -23	—	—	—	—
32x4½-23	7732	0.3	21413	0.3
32x4 -24	5602	0.2	18833	0.2
33x4½-24	—	—	406	0.0
32x3½-25	—	—	—	—
33x4 -25	—	—	1293	0.0
34x4½-25	564	0.0	1213	0.0
Total	16420	0.6	59597	0.7
20" TRUCK				
30x5	159982	6.9	621716	7.4
32x6	38938	1.7	110858	1.3
34x7	8241	0.4	33152	0.4
36x8	5989	0.3	20490	0.3
40x10	729	0.0	2142	0.0
Total	213879	9.3	788358	9.4
22" TRUCK				
36x7	1520	0.0	2649	0.0
24" TRUCK				
34x5	368	0.0	6539	0.
36x6	7056	0.3	15772	0.
38x7	6924	0.3	17420	0.
40x8	2178	0.1	7574	0.
44x10	160	0.0	480	0.0
Total	16686	0.7	47785	0.0
GRAND TOTAL	2316324		8354379	

Reducing the Overhead in Rubber Manufacturing Plants

The Least Understood and Most Important Cost Item—Many of Its Phases Assumed To Be Fixed Can Be Cut By Shrewd Management—Should Be Watched as Vigilantly as Labor and Materials

IN every business there is a silent partner that puts in very little and takes out a big slice every day. This partner's name is OVERHEAD. Whether the business is on a dividend paying basis or not, overhead gets his share out of every day's work, yes, out of every operation. Grim and relentless as time itself, overhead goes on taking his toil; and many a shop, store and office has been closed by this 'hard-boiled,' ever-present factor. Many a home has been wrecked because overhead was not allotted definite wages, but was allowed to push INCOME over the brink of disaster. Keep your eye on this fellow, OVERHEAD."

Of the three items which go to make up costs in rubber factories—labor, materials, and overhead—the latter is probably the least tangible and the least understood by the men in the shop. Too often it is regarded as fixed, and as such is disregarded in the effort to reduce costs in meeting competition and in striving for the ultimate goal of all industry, profit.

Among the items which go to make up overhead in a rubber factory are taxes on plant and equipment, water, power, fuel, interest and depreciation on plant and equipment, interest on raw material and material in process, "seconds," adjustments on defective merchandise, leased charges on machinery, royalties, current expense charges for repairs, replacements, renewals which cannot be classed either as direct materials or equipment, and non-productive salaries of clerks, executives, and employees whose effort cannot be measured in units of finished product.

Almost All Charges Can Be Reduced

At first glance many of these seem hopeless as regards any attempt to reduce them, yet on analysis they will be found to have possibilities little realized. Let us analyze them, one by one, and see what these possibilities are.

Taxes on plant, real estate and equipment are, of course, determined by the valuation set by the local assessors and the current tax rate. In many sections of the country where new industries are encouraged, valuations are set purposely low. For this reason alone, plants long located in the established industrial centers, should periodically check up their assessments to see that they are not being penalized on this important item. By consulting the public records comparisons can easily be made of the valuation per square foot of space between your plant and others in the same district. Machinery should be taken at full depreciated value and should include for tax purposes only the basic units of the industry. Where discrepancies are found, schedules should be filed with the assessors to correct them.

Wafer is used for many purposes in rubber manufacturing. It is essential for cooling mills and calenders, in the boilers for making steam, for the sprinkler system and for general plant usage in drinking fountains and toilet facilities. Water used for cooling or condensation from steam exhausts should not be wasted, but facilities should be provided for re-cooling and re-use. The supply may be obtained from the city mains, from private wells, ponds, or rivers, but in any case there is a cost of pumping. Waste of water from leaks and excessive use in drinking fountains which are allowed to run promiscuously attains surprising cost when allowed to go on without supervision. It should be somebody's job to watch water wastes, and their effectiveness on that job should be measured by the yardstick of meter readings.

Power and lighting may be supplied by the local public utility or may be manufactured. In either case, the first cost is determined by the rate or cost of manufacture. Very often rates are determined by an automatic schedule based on the experience, demand, power factor, and load plus a coal charge. Sometimes rates are fixed by contract which means that the company's representative who makes the agreement must be sure that the price per kilowatt hour is the lowest that can be obtained.

Power Costs Can Often Be Cut

But the final power costs are determined not by the rate but by the consumption, and here is where the big field for overhead reduction lies. How many times in a rubber factory have we seen one lone machine operated with a whole line of others on the same unit running idle? Individual drives on motors and calenders more than make up their cost of installation by power savings. Lack of die or roll equipment often increases power costs by cutting down machine output. Demand curves take sharp turns upward when starting up heavy machinery. Perhaps it might be better to eliminate the shutdown at noon for lunch and work through until three o'clock. Are you using every facility to provide daylight for the workers? Sunlight is cheaper than candlepower. Dirty, muddy skylights increase lighting costs.

First fuel cost is undoubtedly determined in the purchasing department where the contract for the coal at so much per ton or the oil at so much per gallon is made. But the final cost is determined by economy of boiler operation and general efficiency of the steam heating system. Steam leaks, like water leaks, cost money. Dirty boiler tubes increase fuel costs. It pays to put a yardstick on fuel consumption and follow it closely.

Interest and depreciation on plant and equipment is perhaps the most fixed of all overhead charges. It should be adequate enough to care for machinery replacements and to insure that the amount carried as plant and equipment is well below the annual sales, thus permitting an annual turnover of at least two to one. But what causes depreciation of plant and equipment? Age, obsolescence, and wear and tear. The first is inevitable, the second can be controlled by judicious buying of machinery—looking not only at the needs of the present but at those of the future—and the third can be reduced by careful operation and prompt repairs. So there is some room for work here after all.

Interest on raw material and material in process is controllable to a marked degree. Raw material turnover can

be increased by an adequate material control system which insures materials being on hand when needed, but never in excess of current requirements. Where market conditions justify forward purchases, deliveries can be scheduled so that the excess never becomes unwieldy. Material in process is determined largely by the schedule of mill operations. Rapid strides are being made in reduction of this item by the use of conveyors and speeding up of machinery, often at the urge of more prompt deliveries. These efforts automatically reduce the material in-process item, thus lowering the interest charge.

Reduction in Seconds and Waste

There is not much need to talk to the rubber mill man about seconds. Of all the items in overhead, he probably hears more about this one than any of the others. This is because the loss is sizeable and readily seen. Coupled with it is the item of material waste which is reflected directly in the material cost, thus sticking out like a sore thumb. Reduction of seconds and reduction of waste are accomplished by steady hammering at the objective, and the results are easily measured.

Adjustments on defective merchandise, due to failure of the product to give the service to which the user is entitled, have been a constant problem, especially in the tire industry. They take their toll of overhead, a toll which is not large, but is nevertheless a constant inspiration to build into the product uniformity and quality. This little item of overhead justifies the existence of the laboratory and laboratory control, which takes the risk away from the rule of thumb and puts it under the supervision of science. The introduction of anti-oxidants, one recent gift of science to the rubber industry, is going to do much to reduce this item of overhead.

Leased charges on machinery and royalties bring up a question of policy as to whether it is better to buy machinery outright and charge off depreciation every year, or to lease it, thus relieving the factory of part of this burden. Here the size of the plant makes a difference. The large unit which can afford facilities for designing and erecting special machinery can doubtless ill afford to lease, but the smaller unit is often better off under the royalty proposition.

Current expense charges for repairs, replacements, and renewals are controllable on a budget plan. Unless watched, useless frills and small expenses creep in which do not aid in producing merchandise. Excessive breakage can often be traced to poor selection of accessory equipment such as shells, bars, liners, skids, and trucks. Pilferage of light bulbs can be prevented by using lock sockets. Types of brooms and brushes should be selected not on their initial cost but on the final cost. Printing bills can become sizeable due to the introduction of useless forms and systems. "Simplify" is a good catchword to inspire reduction of this item of overhead.

Using the Wrong Lubricating Oils Costly

Lubricating oils and greases can be wasted by misuse as well as by selection of the wrong grade for the purpose. It pays to investigate these conditions periodically. Soaps, disinfectants, paints, and cleaning preparations of simple formulas are often sold at high prices under fancy trade names, when in many cases they could be mixed right in the plant out of ingredients used in rubber compounding. In the aggregate they contribute heavily to overhead costs.

The last item is the most important because it concerns us personally—executive and so-called non-productive salaries. There are times of stress in the rubber industry, as in all business, when management deems it advisable to saw off part of this limb of overhead. There are two ways of doing this of which this one is the easiest, namely, the cutting of each department's force arbitrarily without recourse. The other is to analyze executive overhead by men and what they do, and try to fit each where he functions best, often combining duties and consolidating departments. This latter method, while not so easy, is most satisfactory and will be found more enduring in the long run.

In large corporations the main body of executives are classified by their positions with duties definitely outlined. In small corporations, the tendency is to classify by men and give them as much scope as they can handle. In either case, management should avoid overlapping of functions and the laying down of hard and fast rules which increase red tape.

Rate of salary is often regarded as determined by the market, making executive services a commodity the same as common labor is often spoken of, the price being determined by the supply and demand. This is a false premise. The higher one goes in the scale, the less mobile his labor becomes. The loyal, efficient executive is in most cases worth more to the concern that employs him than he is to any other. That concern has made an investment in him, extending over a period of years, which it loses when he goes elsewhere. The man himself has a utility to that concern above all others, which he does not have in a full measure when he goes elsewhere.

Loyalty and Esprit de Corps as Factors

It is often a problem to management to keep the loyalty and enthusiasm of its key men to the point which spells the greatest efficiency. To the man himself, the complicated scheme of our industrial life presents a problem as to how he will get for himself the greatest utility of his services. Each one of us does not like to feel himself as part of the burden of overhead, but in the last analysis we are a part of it, and can only justify our presence on the payroll by the measure of service we give. The man in the plant can measure his service by the number of tires he produces or the number of heels he moulds, but the service of the excutive can only be metered by management by ways and means involving personal contacts and successful accomplishments. And therein lies one of the biggest problems of management.

10 YEARS AGO

Items Reprinted from May 25, 1918, issue of THE RUBBER AGE

RUBBER was placed on the list of restricted imports on May 6 by the War Trade Board and a limit of 100,000 tons per year was the amount named as allowable for import under the license regulations. . . . Over 550 representatives of the rubber industry met at the Waldorf-Astoria on May 10 to discuss the general status of the industry with members of the War Trade Board. . . . The special Liberty Loan Committee for the Rubber Industry of Greater New York well exceeded its quota of $5,000,000 by obtaining subscriptions amounting to $5,740,800. . . . The New Jersey Car Spring and Rubber Company, of Jersey City, N. J., has been reorganized with G. W. Henne as president. . . . R. M. Lowenthal & Company, scrap rubber dealers, open an Akron office. . . . Enlistments from the B. F. Goodrich Company plants have reached 1,624 men. . . . Tire prices advance 10 to 15 per cent. . . . The Lambert Trubulpruf Tire Company is incorporated in Spokane, Washington. . . . The plant of the Grant Tire & Rubber Company, Findlay, O., is destroyed by fire. . . . Mason Tire & Rubber Company begin the manufacture of solid truck tires. . . . Coincident with the import restrictions on crude rubber, maximum prices are established by the War Trade Board on standard grades of plantation and Para rubbers. . . . The maximum price on ribbed smoked sheets is set at 62 cents.

The Italian Rubber Industry

All Departments of the Rubber Industry of Italy Have Grown Greatly Since the World War—Five Companies Are Principal Factors in Trade

By HARRY B. NEWMAN

BEFORE the World War, foreign rubber manufacturers supplied Italy with about 50 per cent of the rubber goods which the country consumed. Imports from Germany exceeded those from other countries, owing mainly to lower prices, better commercial facilities and more favorable terms of payment allowed by the German exporters. When high quality goods were desired, the preference was apt to be given to British and American goods, but for the less expensive lines the German rubber manufacturers were soundly entrenched in the Italian market.

The great development of the Italian rubber industry occurred after the outbreak of the war. New factories, both large and small, have sprung up. In 1909 the value of Italy's exports of rubber manufactures was only $4,130,000. In 1925 the exports were valued at $16,770,000.

The progress of the Italian rubber industry in the last few years is best reflected by the imports of crude rubber—8,764 tons in 1924, 11,412 tons in 1925, 9,810 tons in 1926, and 11,381 tons in 1927.

Customs duties protect the Italian rubber industry, and if American or other manufacturers wish to gain ground, it is believed that this can be done only by offering goods of the highest quality at the lowest competitive prices.

The Italian rubber industry is concentrated in Lombardy, the industrial center of the kingdom, and although many establishments are engaged in the manufacture of rubber products, only about five enter seriously into the export field—Pirelli, Hutchinson, Martiny, Bergougnan & Tedeschi, and Michelin.

Societa Pirelli Holds Dominant Position

The best-known establishment is Societa Pirelli, founded in 1872 at Milan; since that date Pirelli has gradually become the paramount rubber manufacturing concern in Italy. Its factories and office buildings occupy over 100 acres, and over 9,000 persons are employed. The capitalization is 155,000,000 lire, and the volume of business is reputed to be approximately 1,000,000,000 lire. Various branch factories are located in Italy, with subsidiaries in Spain, Great Britain and Argentina. The company also operates extensive rubber plantations in Java, where the greater percentage of the raw rubber consumed in its factories is produced.

At Spezia, Italy, the Pirelli plant is devoted exclusively to the manufacture of submarine cables. At Veracurago another plant is used for the preparation of chemicals and compounding ingredients consumed in the preparation of rubber products. This plant is also used as a research laboratory. Tire and other rubber products are manufactured principally at the head factory at Milan. The plant in Spain is situated on the Catalan Riviera, about 25 miles from Barcelona. The factory in Argentina is located at Buenos Aires. The British plant, at Eastleigh, near Southampton, commenced to function in 1914. At present, plans for its enlargement are being prepared in order to serve more potentially the British market, especially in pneumatic casings and solid tires.

Milan is also the location of the Societa Italian Industria Gomma & Hutchinson, which manufactures all kinds of rubber goods and maintains six branch houses throughout the kingdom.

The Italian Rubber Industry is Centered in the North of Italy Around Milan, Turin and Spezia

Manuffature Martiny, established at Turin in 1876, produces all kinds of rubber goods, and maintains four factories and seven branch houses in Italy. The capitalization is 7,000,000 lire, and the volume of business is said to be around 200,000,000 lire. About 700 workmen are employed.

A very important factor in the local industry is the subsidiary factory at Turin of the Michelin Company of Clermont-Ferrand, France. This factory leads Pirelli in supplying the Italian market with pneumatic casings, and also exports to adjacent markets, as Switzerland, Austria, Germany and Hungary.

Societa Anonima Bergougnan & Tedeschi, formerly the firm of G. Tedeschi & Co., is located at Turin, and produces principally rubber tires and proofed goods. The capitalization is 15,000,000 lire, and the company employs more than 1,100 persons.

The self-sufficiency of Italy in the production of rubber tires is evidenced by the large favorable balance of exports over imports during the last three years. In 1927, for instance, Italy exported 9,447,000 pneumatic and solid tires, and imported only 2,090,200. Italy imports tires principally from the United States, France and Great Britain. French manufacturers lead as a source of imports, but American companies are making considerable headway. Although Michelin supplies the Italian market chiefly through the factory at Turin, exports from France to Italy in 1927 included an estimated 113,610 automobile casings.

Italy exports pneumatic casings to all parts of the earth—in 1927 to no less than 65 territorial units. The principal market is Great Britain, followed by Argentina and British India.

The local rubber-footwear industry is as yet unable to

Abstracted from *Commerce Reports*, official organ of the U. S. Department of Commerce.

supply the domestic demand, imports exceeding exports in 1927 by more than 265,000 pairs.

The trade in rubber footwear, according to countries of origin or destination, is not separately listed in the official Italian statistics, but the export figures from the principal exporting countries show some interesting results. In 1926 France exported to Italy an estimated 305,000 pairs of rubber footwear, but only 39,125 pairs in 1927. The United States in 1927 lost to the advantage of Great Britain. In 1926 the United States exported to Italy 89,158 pairs of rubber boots and shoes and canvas rubber-soled shoes, against 43,572 by Great Britain. In 1927 the United States declined to 86,102 pairs, while Great Britain increased to 91,344 pairs. Canada advanced its share of the trade from 18,319 pairs in 1926 to 23,337 in 1927. It is also reasonable to believe that the adjacent countries of Austria and Germany sent considerable shipments of rubber footwear to the Italian market.

Italian exports of mechanical rubber goods exceed imports, although the surplus of exports over imports in 1926 was greater than in 1927—36,700 and 33,000 kilos, respectively. The United States in 1926 shipped 1,787 pounds of rubber belting to Italy, increasing in 1927 to 20,156 pounds. Great Britain in 1927 exported to Italy 24,192 pounds of rubber and balata belting.

Italy maintains a favorable balance of trade in miscellaneous rubber goods—299,000 kilos in 1926 and 80,000 kilos in 1927. Imports in 1927, as compared with 1926, increased 27 per cent; exports declined less than one per cent.

World Has 30,000,000 Automobiles

THE number of automobiles in the world at the present moment would probably reach 30,000,000. At the early part of 1928, according to a survey made by *The American Automobile*, there were 29,638,535 passenger cars, trucks and buses in use, and the increase since that date is believed sufficient to make the world-wide registration around 30,000,000. Of the registration at the first of the year, 23,253,882 automobiles were in the United States.

The number of tires required each year by these automobiles is estimated to be between eighty and ninety millions. In most foreign countries more tires per car are used each year than is the case in the United States.

The figures given above do not include motorcycles, but a separate column for them is provided in the accompanying table. The chart herewith, reproduced through the courtesy of *The American Automobile*, shows the number of automobiles in the various countries of the world:

WORLD REGISTRATION OF MOTOR VEHICLES

	*Automobiles	Cars	Trucks	†Buses	Motorcycles
Africa	229,190	170,070	24,747	2,857	48,248
America (Excluding U. S.)	1,560,441	1,230,178	218,550	754	13,482
Asia	348,496	255,486	58,575	4,073	54,337
Europe	3,613,377	2,296,913	890,527	112,142	1,447,410
Oceania	633,149	522,337	110,812	.....	120,668
Total	6,384,653	4,474,984	1,303,211	119,826	1,684,145
U. S. A.	23,253,882	20,282,214	2,941,930	29,738	119,668
Grand Total ..	29,638,535	24,757,198	4,245,141	149,564	1,803,813

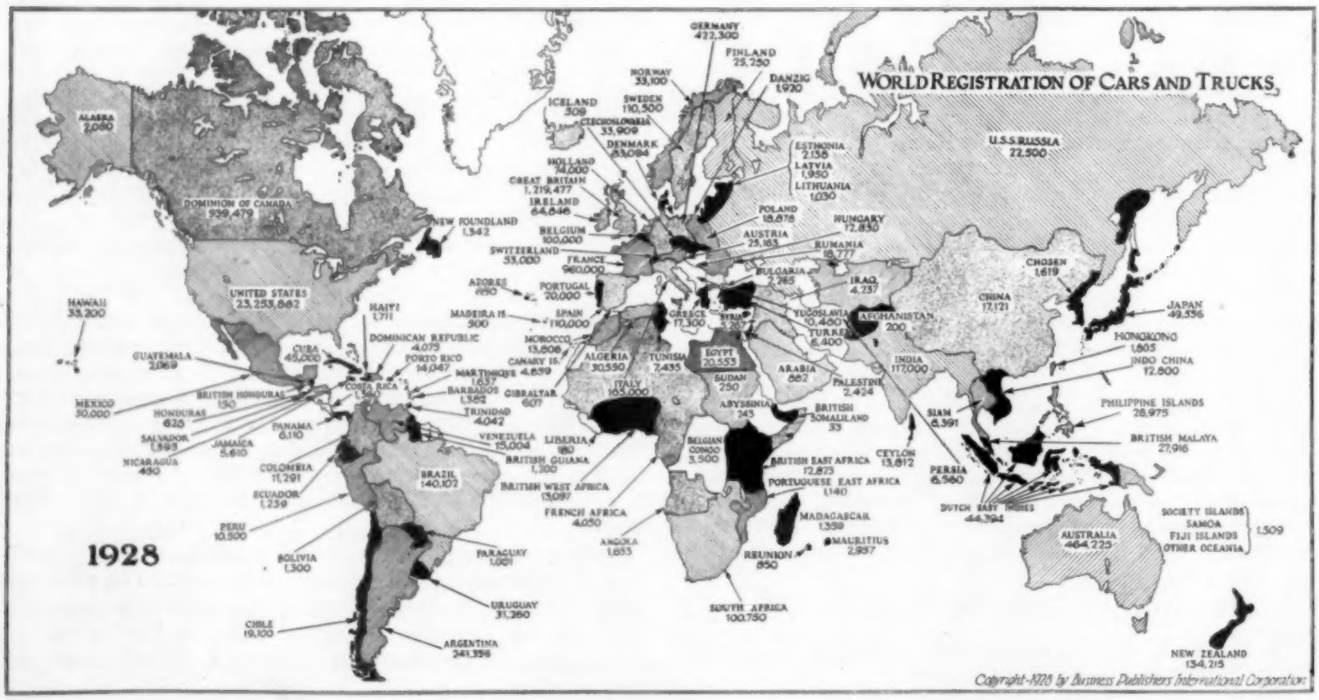
*Includes cars, trucks and buses. Motorcycles not included.
†Buses not complete, included as cars or trucks in many countries.

R & H 40 Accelerator

A SMALL descriptive circular describing the properties and uses of R & H 40 was recently distributed by the Roessler & Hasslacher Chemical Co., New York City. This well-known accelerator is an aldehyde amine product which is widely used on account of its great activity and low cost. It is a brown powder, non-toxic and odorless. It is said to flux readily, shows no scorching tendencies, and will not shelf cure.

According to its producers, R & H 40 works well with most fillers. Used in reclaims, a small quantity gives the stock a good tensile in a short cure, the maximum being produced in 30 minutes using .5% of the accelerator. It is recommended by the manufacturers for cheap treads, frictions and mechanical goods as well as molded inner tubes.

The circular also includes the results of numerous tests made with R & H 40 in various stocks and should prove of help and guidance to rubber chemists.



Four Papers Feature First Meeting of Boston Group

Last Local Group of Rubber Division, A. C. S., is Established at Boston With 275 Present—Valuable Discussion Follows All Four Papers—Abstracts Are Printed Herewith

THE fourth local group to be established within the Rubber Division, American Chemical Society, thereby completing the group organization program adopted by the Division last September, held its first meeting at the Chamber of Commerce Building, Boston, on Wednesday, May 9. Approximately 275 rubber chemists, engineers and other representatives of the rubber industry attended. C. R. Boggs of the Simplex Wire and Cable Company presided.

Four papers were read, each of them proving of great interest, and it was the opinion of those present that future meetings of the Boston group would be conducted along the same lines as the first. All the papers dealt more specifically with rubber chemistry than did most of the papers which were read at the earlier group meetings in New York, Akron and Los Angeles, and they brought forth an unusual period of discussion which was regarded as being of particular value. In fact, more discussion followed the reading of these group papers than is usual even at the annual or semi-annual meetings of the Division. Among those who were active in following up the subjects from the floor were such well-known technologists as Messrs. Wiegand (Binney & Smith Co.), Johnson (Godfrey L. Cabot, Inc.), Glenquist (Fisk Rubber Co.), and others.

C. R. Boggs Presides

A generous measure of credit for the success of the first Boston meeting must be given to C. R. Boggs, who was the principal worker in its organization. He acted as chairman throughout the organization period and at the meeting itself. Since the election of officers was deferred to the next meeting, Mr. Boggs will continue to act as chairman. The date for the next meeting was not set.

After the excellent dinner with which the meeting was opened, Mr. Boggs briefly reviewed the history of the Rubber Division, and explained the reasons for organizing the local group, as follows: (1) Such meetings would make possible the reading of longer papers, with more ample time for discussion; (2) they would allow the reading of papers of a nature not usually put on the programs of the Divisional meetings; (3) they give the younger technologists of the industry an opportunity to contribute to and be benefitted by the Division's work, and (4) they enable both technical and non-technical men to join in the discussions.

As illustrative of the idea of how the meeting interested all parts of the industry, Mr. Boggs called attention to the fact that among those present were Everett Morss, president of the Simplex Wire & Cable Co., and F. C. Hood, president of the Hood Rubber Company.

Two of the four papers read at the meeting were given by technologists other than those originally scheduled. The paper

C. R. BOGGS

on "The Rate of Heat Transfer in Rubber Goods During Vulcanization" was given by T. K. Sherwood, instead of T. M. Knowland, development manager of the Hood Rubber Company. The paper on "The Structure of Rubber" was given by Prof. P. K. Frolich, instead of Prof. W. K. Lewis of Massachusetts Institute of Technology. Prof. Frolich is assistant professor of chemical engineering and assistant director of the research laboratory of applied chemistry at M. I. T.

Abstracts of the four papers follow:

The Theory of Reinforcing Pigments

By J. T. Blake

Simplex Wire & Cable Co.

A new theory of pigment reinforcement is presented, in which a reinforcing filler is defined as one which forms a bond with the rubber matrix that is stronger than the matrix itself. A molecular tensile curve substantiates the conception. The mechanism of filler dispersion is considered, and the work of Langmuir and Harkins is applied to rubber. Calculations of the quantity of dispersing agents and of the heats of wetting conform to experimental values. The means of extending the reinforcement of rubber by carbon black is discussed.

Heat Transfer in the Vulcanization of Rubber

By T. K. Sherwood

Hood Rubber Company

Temperature lag in the heating of rubber articles is found to cause marked non-uniformity of cure in the resulting product. The theory of "unsteady state" heat flow is discussed, and a method described for analyzing data on temperatures in rubber being heated. Having data on the temperatures at different times during the heating process, and knowing the relation between the rate of cure and the temperature, it is shown how the resulting curing effect at different points in a solid rubber object may be calculated. A new "water cure" process for tires is described which is very effective in reducing the non-uniformity of cure caused by the temperature lag effect, and at the same time appreciably reduces the necessary curing time.

The Importance of Softeners and Dispersing Agents in Compounded Rubber

By J. M. Bierer

Boston Woven Hose and Rubber Co.

Softeners have always been used in rubber goods, even when they were added unconsciously as impurities in wild rubbers. Instead of passing into disuse with the advent of plantation rubber, they are used more than ever, and it is now realized that they perform several highly important functions. Of these the most important is their ability to promote the dispersion of pigments, and in economic importance softeners are primarily dispersing agents. This is of fundamental importance, for the improvement in the quality of rubber goods each year has been accomplished by the use of more and more pigments difficult to disperse, and a smaller and smaller proportion of rubber. This would be impossible without dispersing agents, and since reclaimed rubber is itself a dispersing agent, its use in the highest quality of goods without impairment of quality is at least in part attributable to its dispersing power. All this shows the tremendously important role which softeners and dispersing agents play in modern compounding.

The Structure of Rubber and Its Importance in the Manufacture of Rubber Goods

By P. K. Frolich

Massachusetts Institute of Technology

The structure of rubber is discussed in the light of various plant problems with which everyone connected with the rubber industry is familiar. Particular emphasis is laid on (1) the amorphous character of rubber, (2) the chain structure of the rubber molecule, (3) the tendency of these large molecules to break down into smaller units, with consequent decrease in viscosity, and (4) the ability of the double bond in rubber to add on sulphur. On this basis, explanations are offered to explain the effect of milling in general, of hot versus cold milling, of the effect of sulphur addition as counteracted by depolymerization, due to the simultaneous heating, of the role of accelerators, of the quality of reclaimed rubber versus that of the natural product, and of the function of fillers. In conclusion, it is shown him simply the X-ray difraction pattern developed under strain can be explained on the basis of the structure of the rubber molecule as outlined above. The use of the term crystallization in this connection is condemned.

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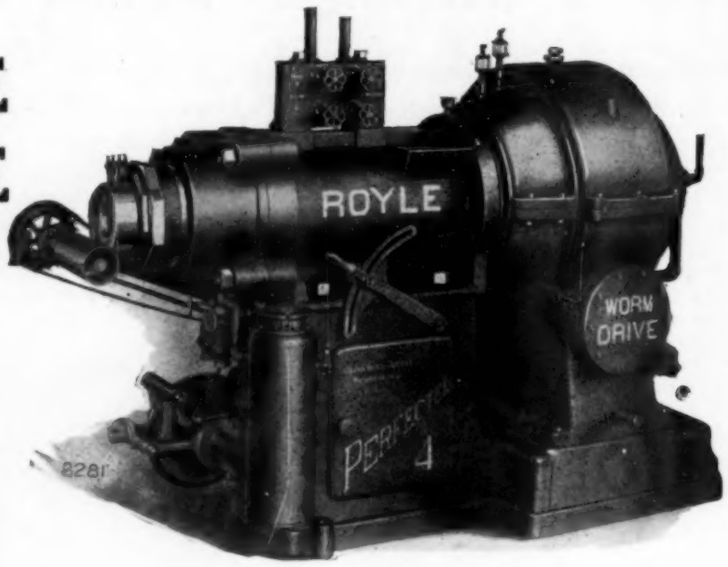

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EDITORIAL COMMENT

Restricting Rubber Consumption

THE new tax of four pence per gallon on gasoline which is the latest burden placed by the Churchill budget on the motoring public of Great Britain is being made the subject of strenuous protests from all over the British Isles. It is even being seriously questioned whether in spite of the estimated annual revenue of £14,000,000, which it is supposed to bring to the British Treasury, it will not prove a boomerang in its discouraging effect on automobile sales, and accordingly on the sale of tires, at a time when the British public is being urged to use rubber to the limit. The new tax is an additional burden on the automobile owning class who are already paying tribute to the tune of £1 per horsepower per annum on their motor vehicles.

Crude rubber plays such an important part in the financial structure of British industry and at this time needs so much support in the way of increased consumption of the commodity that it seems extraordinarily odd that with the entire policy of rubber restriction now reversed and all hindrances to a free production off in Malaya and Ceylon, restriction to a free consumption of the commodity should now be imposed in Great Britain in the backhanded form of a tax on the privilege of riding on rubber tires. There is no question that the imposition of just such taxes affecting automobile travel in the past in Great Britain has been the reason in a large measure why there is only one registration per 43 inhabitants in the United Kingdom as compared to one to every 4.9 inhabitants in the United States.

For several years the British Rubber Growers' Association has been carrying on an energetic campaign to develop and further the adoption of rubber to many new uses and has used its utmost efforts to increase consumption of rubber in ways in which it is already applied. It has talked about rubber roadways, rubber mats, rubber bindings for books, rubber this and rubber that but it would seem that scant attention has been given to developing the biggest use of all. With all the influence which the Association could exert through the excellent standing of its organization and the thousands of shareholders of rubber companies which could form a force to be reckoned with in financial matters, it would appear that the real opportunity for developing the maximum consumption of crude rubber throughout the United Kingdom has been missed and that to carry motoring to the Nth degree in every manner and form should be the policy of those organizations in crude rubber circles. Such a move would be welcomed by the automobile interests and motor associations. The first step in such a policy would be a determined fight on all hindrances to motoring such as the present gasoline tax.

Tire Standardization at Last

THE tire industry appears to have at last gotten a real start on the simplification of tire sizes. A program worked out by the rubber and automotive trade organizations to cover the automobile manufacturers' requirements for 1929 calls for 25 per cent less sizes than were needed for the 1928 cars. The reduction is from 24 to 18. Since it is commonly admitted that ten or twelve sizes ought to be plenty to take satisfactory care of all weights and models of cars, a reduction to no lower figure than 18 may seem disappointing. When it is considered, however, that any sort of a program has been difficult to achieve it will be apparent that the tire industry is to be congratulated on the start that has been made.

The promised rewards of standardization are large, but it must not be overlooked that in the case of tires, they will be slow in coming. The limited number of sizes for original equipment will become effective only with the introduction of 1929 models. The sizes which thus become obsolete are in use on many thousands of cars, however, which will make it necessary to manufacture and stock them until those cars finally pass out of service.

But perhaps the most satisfactory feature of the standardization work is that, now that the ice is broken, the tire and automobile men will be called into conference at various times each year to continue the work of eliminating additional sizes for which there appears to be only slight demand. And at the same time, every effort will be made to resist the introduction of new sizes unless some other size can be dropped.

There are other parts of the rubber industry which need standardization almost as badly as did the tire industry. It is hoped that the success in the tire field will set an effective example. The difficulties can be no greater and the economies will, in many cases, be more quickly felt.

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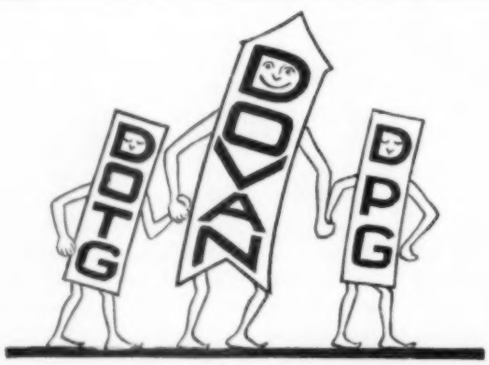

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RUTHERFORD BECOMES PENNSYLVANIA'S HEAD

Former Goodrich Official is Elected to Presidency of Pennsylvania Rubber Company—Has Long Been Prominent in Rubber Circles.

THE election of W. O. Rutherford, formerly vice-president in charge of sales of the B. F. Goodrich Company, as president of the Pennsylvania Rubber Company, Jeannette, Pa., was announced by the board of directors of the Pennsylvania company on May 17.

Mr. Rutherford was connected with the Goodrich organization for 26 years and is a well-known figure in rubber manufacturing circles. He came to Akron as a small boy from Fairview, Pa., where he was born in 1874. At the time of the Spanish-American War he enlisted with the 8th Ohio Volunteers and saw considerable service in Cuba.

Mr. Rutherford joined the Goodrich organization in 1900 in the sales department and showed such marked sales ability that he was sent to Detroit, which was then just beginning to develop as the automobile manufacturing center of the United States. Later he was sent to Denver as district manager and subsequently to the important post of the New York territory. He was shortly afterwards made vice-president in charge of sales and a member of the board of directors and handled the sales policy of the Goodrich company through many of the years of its remarkable growth.

On the occasion of his resignation from the concern in January last he announced that he had no plans for the immediate future but would take a vacation. He subsequently made an extensive tour of the West Indies, visiting many of the scenes of his campaign days in the army and returned to Akron late in March.

He has served at various times as president of the Rubber Association of America, president and director of the Motor and Accessory Manufacturers' Association, director of the Lincoln Highway and member of the Pan American Highway Education Board.

The Pennsylvania Rubber Company, which he now heads, was incorporated in 1899 and manufactures a full line of automobile tires and inner tubes, bicycle and motorcycle tires and tennis balls, being particularly well-known for their "Vacuum Cup" and "Pennsylvania" brands of automobile casings.

W. O. RUTHERFORD

Seek to Export More Rubber

The rubber growers in the restricted areas of Malaya and Ceylon are already evincing a desire not to wait until November 1, 1928, before increasing their exportations of crude rubber. The Planters' Association of Malaya is reported as circulating district planting associations to obtain their views regarding the advisability of formally requesting permission to release an additional 10 per cent of rubber before the time set for the abolishment of the restriction plan.

A. C. S. TO HOLD ITS 76TH MEETING AT SWAMPSCOTT

The seventy-sixth meeting of the American Chemical Society will be held September 10 to 15 at Swampscott, Mass., under the auspices of the Northeastern Section of the Society. Two large Swampscott hotels, the New Ocean House and the Hotel Preston, have been engaged for the Society's exclusive use. The headquarters of the Rubber Division during the meeting will be the Hotel Preston.

Goodrich Holds Record Day

The tire division of the B. F. Goodrich Company held its second annual record production day on May 18, when it produced 46,000 pneumatic casings and 61,000 inner tubes.

Officials of the company in commenting upon the high record made, thanked the employees throughout the plant and stated that the achievement was due entirely to their interest and spirit.

APRIL CONSUMPTION OF CRUDE RUBBER DECLINES

Imports of Crude Rubber for First 4 Months of Current Year Fall Below Total Tonnage For Corresponding Period Last Year—Stocks Also Less.

THE consumption of crude rubber fell off during April to 32,772 tons, which was approximately 3,000 tons less than the amount used in March, and about the same number of tons less than the consumption in April, 1927. The total consumption for the first four months of the current year, however, was 136,625 tons, and still exceeds the total for the corresponding period last year by 3,000 tons.

Imports of crude rubber during April also showed a decline from the 40,894 tons imported during March, and totaled 37,240 tons, or 11,433 tons less than in April, 1927. As a consequence, the total imports for the four months' period amount to 153,822 tons, which is 3,500 tons less than the arrivals for the same period of 1927.

In the face of the slackening in consumption and in spite of the decline in imports of crude rubber, stocks on hand are still high, and stand at 113,083 tons, which is only a slight decrease from the record high figure of 114,061 tons, which was the total at the end of March. Stocks afloat, however, are reported as only 33,986 tons, so that the total of stocks on hand and afloat amounts to 147,069 tons, or 6,000 tons less than was reported at the end of March.

The consumption of reclaimed rubber during April was estimated at 16,900 tons, representing 51.6 per cent of the total crude rubber used, and is an increase of approximately one per cent from the ratio of reclaimed to crude used in March.

Detailed monthly figures of crude rubber consumption, imports and stocks on hand and afloat are included in the appropriate tables in the statistical section of this issue.

The various grades of crude rubber imported during April, as compared with arrivals during the same month of 1927 and March of the current year, as reported by the Rubber Association of America, are shown in the table given below. Official figures will be issued by the Department of Commerce later in the month.

	April 1927	April 1928	March 1928
Plantations	45,843	36,108	37,545
Paras	1,822	573	2,430
Africans	351	15	72
Centrals	229	20	92
Guayule	418	524	755
Manicoba, Matto Grosso	10	....	....
Totals	48,673	37,240	40,894

The Pierce Roberts Rubber Company, Trenton, N. J., will erect a one story factory addition to care for increased production in the mechanical goods department.

NO TIRE PRICE CUT WITHIN THREE MONTHS

Firestone Denies Statement That His Company Plans Immediate Reductions—Thinks Cut Possible After July 1—Uncertainty Hurting Retail Sales.

THE emphatic statement of Harvey S. Firestone, Sr., to the effect that the Firestone Tire & Rubber Company has no intention of cutting the price of tires in the near future, coming as it did on the heels of a contrary newspaper report carried by several papers, has somewhat quieted the retail tire market, but dealers who have generally been buying in a hand to mouth manner will doubtless continue to do so until they are more certain of the probable trend in tire prices after July 1.

Mr. Firestone's original statement, which he claimed was misinterpreted, was to the effect that tire prices would only be reduced as soon as the rubber companies were able to work off their present high priced inventories. In his opinion at least two months will elapse before the reduction in the price of the raw commodity can be passed on to the consumer. But even such a prediction as to the possibilities of price slashes after July 1 will have a tendency to injure sales in the interim.

Rumors Damaging to Sales

In an analysis of the retail tire situation since the announcement of Mr. Firestone's statement, the *Wall Street Journal* makes the following illuminating comments:

"The big danger in the opinion of rubber men is that this hand-to-mouth buying policy will so retard sales that some company advantageously situated in regard to its inventory position will cut prices of tires before July, and thereby cause considerable loss to the industry. Tire sales, at current prices, can be stimulated only by the entire industry's presenting a united front and refusing to cut tire prices before July 1, at the earliest. With automobile mileage increasing steadily as summer weather approaches, the industry hopes dealers will be forced into the market to supply seasonal demand from motorists.

"History shows that the rubber industry has invariably passed on to the consumer any reduction in the price of crude rubber, generally before it has had time entirely to work off its high-priced inventories. On the other hand, the rubber companies have always hesitated to raise the price of finished products in a rising crude market, until the fact was definitely established that the move upward was economically justified and not merely speculative.

"There is, therefore, no particularly unfavorable news in the fact that tire prices will be lowered in July or August. A great deal of harm, however, has been done by the circulation of reports that this company or that company had decided to cut prices immediately. Tire dealers are invariably on the alert for the possibility of price reductions, and sales are accordingly retarded.

It is highly conjectural whether increased demand from motorists for tires will be able to counterbalance fully the caution that has been instilled into dealers by the drop in crude rubber. Not until the semi-annual reports of rubber companies have been published will it be possible to determine the exact amount of sales loss suffered by the industry. It is generally believed, however, that the majority of reports for the first half will compare unfavorably with those of the corresponding period of 1927. With the tire price reduction bugaboo out of the way, sales and earnings of rubber companies for the second half year should show a decided improvement."

FORD SHIP TO SAIL SOON FOR AMAZON

It is reported that the Ford steamship *Lake Ormoc* is being fitted out for a special mission to the Ford rubber concession in Brazil, where it will be used as a base of operations for the engineers, scientists, rubber culturists and their staff during the preliminary development work in the recently acquired rubber area. The ship is said to be equipped with a complete laboratory. It is planned to sail within the next few weeks.

DARROW ELECTED HEAD OF TIRE AND RIM ASSOCIATION

At the recent annual meeting of the Tire and Rim Association of America, Inc., B. Darrow, development manager of the Goodyear Tire & Rubber Company, was elected president of the organization. Mr. Darrow was formerly vice-president of the association and in assuming the presidency he succeeds W. B. Minch, works manager of the Jackson Steel Products Company of Jackson, Mich.

Mr. Darrow has been connected with the Goodyear Tire & Rubber Company since 1908 when he began work in the experimental and tire design departments. In 1920 he was made head of the technical service department of the Los Angeles factory but returned to Akron the following year to assume charge of the development department, the position he now holds.

Footwear Divisions Move

In order to be closer to the shoe trade, the B. F. Goodrich Company has moved their New York and Boston footwear division offices to downtown locations within the wholesale shoe districts. The New York office will be at 50 Thomas Street, while the Boston office will be located at 614 Atlantic Avenue. I. B. Wells will continue to head the New York office, while R. J. Jones has been recently appointed to be in charge at Boston.

At the joint convention of the store managers' division, personnel group and traffic group of the National Retail Dry Goods Association, held recently in Detroit, the retail rubber goods trade was represented by an exhibit of the F. G. Schenuit Rubber Company of Baltimore, Md.

NEW ENDICOTT JOHNSON RUBBER PLANT COMPLETED

The new rubber manufacturing plant of the Endicott Johnson Corporation located at Johnson City, N. Y., has been completed at a cost of approximately $475,000. The new building is five stories high, 550 feet long and 60 feet wide. It was built by the company's own engineers over a one story building which the company has been occupying while the new construction has been going on.

The company has also finished its own rubber reclaiming plant and are now making 22,000 pounds of reclaimed per day. A second unit of the reclaiming plant is to be built shortly.

In the new building the latest types of equipment have been installed and conveying systems have reduced the handling of material to the minimum. The company is running on a daily production schedule which calls for 50,000 pairs of soles, 125,000 pairs of heels and 25,000 yards of rubber welting, beside some mechanical rubber goods.

DR. ALBERTO PIRELLI VISITS THE RUBBER CITY

Dr. Alberto Pirelli, president of the International Chamber of Commerce and head of the large Pirelli rubber works in Italy and other parts of the world, made his first trip to Akron during the week of May 14. He spent several days in the "Rubber City," visiting local factories and in conferences with plant executives. He also spoke on May 16 at a luncheon given in his honor by the Akron Chamber of Commerce at the City Club.

Amazon Company Reorganized

The Amazon Rubber Company, Akron, O., has recently been reorganized by Akron and Cleveland capital and has taken over the old plant of the company under the new name of the Amazon Rubber Corporation. The new concern is incorporated under the laws of Ohio with a capital stock of 10,000 shares of no par value. R. C. Fulmer, former president of the old concern, was elected president and treasurer of the new company, while A. Kroehle and E. C. Shelderfer were elected vice-president and secretary, respectively.

New equipment has been installed in the old plant and officials of the company state that a production of 500 tires per day will be started immediately. The company will start with three lines, a super-bus type, the "Amazon" and "Victory" brands. It is reported that W. F. Goff, formerly with the Star Rubber Company and now technical superintendent of the new concern, has developed new treads for all three lines.

Paramount Moves Offices

The Paramount Rubber Company announce the removal of their New York office from the Fifth Avenue Building to Suite 316, Flatiron Building. In the new location they will have more space for the display of their line of rubber balls and other rubber toys and novelties.

A. S. T. M. MEETING WILL HEAR REPORTS ON RUBBER

The provisional program of the thirty-first annual meeting of the American Society for Testing Materials, to be held at Atlantic City, N. J., June 25-29, has been published and includes a number of reports of interest to the rubber industry. Rubber will come up for discussion at the third session on June 26, at the afternoon meeting.

F. G. Breyer, chairman of Committee D-11 on rubber products, will make his report which will record substantial progress in investigative work on abrasion tests of rubber and on research into the properties of rubber products to absorb vibration. He is expected to report considerable progress in the development of a machine for testing adhesion and fusion of rubber and friction tapes.

Harlan A. Depew will discuss some of the difficulties in abrasion testing of rubber. Reports of the sectional committee on specifications for rubber-lined fire hose, insulated wire and cable will also be read. THE RUBBER AGE will publish in detail some of the papers as soon as they are available.

BUENA VISTA RUBBER FACTORY TO OPERATE

The plant of the Colorado Rubber Company, which has been under construction at Buena Vista, Colo., is expected to begin operations early in May. The plant is equipped with special machinery to fit the process of manufacture to be followed in extracting the rubber content of the so-called rubber weed, which grows abundantly throughout Central Colorado.

A large number of men are now engaged in gathering the weed, at a wage of 1¼ cents per pound. The results of the new enterprise are being awaited with considerable interest in rubber circles.

Company to Operate June 1

The Seiberling Latex Products Company, which is now the new name for the recently organized K. & S. Rubber Company, will begin operations at Barberton, O., on June 1, according to C. W. Seiberling, president.

The plant of the new company is situated on a tract adjoining the Seiberling Rubber Company but has no connection with that firm. The company will manufacture druggists' sundries and specialties, such as rubber gloves, bathing caps, tubing machine products and sponge rubber balls. The formation of the K. & S. Rubber Company was reported in THE RUBBER AGE of February 25, 1928.

Canadian Tire Exports Jump

Tire exports from Canada took a big jump during March, according to reports from the Department of Commerce. Automobile casings shipped totaled 207,939 units as compared with 142,882 units in February. The average declared value per auto casing was $9.81 as against $10.10 in February. Brazil, United Kingdom, British South Africa and the Argentine were the principal markets in the order named.

Canadian exports of pneumatic casings for the first three months of the current year, however, have totaled 483,159, which is slightly less than the 498,422 casings shipped during the first quarter of 1927 but greatly in excess of the total for the same period of 1926, which was 305,817.

TRACY ACCEPTS EASTERN POST WITH CUPPLES CO.

R. B. Tracy, who has been the eastern sales manager for the Henderson Tire & Rubber Company for the last five years, has resigned to accept the position of eastern sales manager of the tire division of the

R. B. TRACY

Cupples Company of St. Louis, Mo. Mr. Tracy is well-known in the tire trade and has a large acquaintanceship in the west as well as the east, having served as district manager for many years with the Michelin Tire Company and also as sales manager for the Globe Rubber Company and the Paul Rubber Company.

The Cupples Company are manufacturers of many lines including automobile tires and are especially known in the south and southwest through their Cupples Rhino-Cord.

Mr. Tracy's headquarters will be in the New York office of the Cupples Company, 90 West Broadway, New York City.

Florida Gets Rubber Factory

Thomas C. Gould, president of the Gould Tire & Rubber Company, with offices in Tampa, Fla., has recently announced that his company will build a factory at Tampa for the manufacture of rubber tires and other rubber goods. It will be the first rubber plant to be operated in Florida. Mr. Gould has been associated with rubber manufacturing for many years and was lately the organizer of a rubber company in Cuba.

Polson Rubber Growing

In view of the rapid growth in its business the Polson Rubber Company, Cleveland, O., has found it necessary to move its main office into a newly erected office building at Garrettsville, O., where a closer contact between the office and factory can be maintained.

The output of the company is now three times that of last year and it has been necessary to install additional equipment and employ a night shift in order to meet the growing demand.

EXCHANGE PROPOSES TO DEAL IN MORE GRADES

Proposed Amendment to By-Laws Recommended To Provide For Tradings in Amber Crepes and Browns—Will Increase Volume of Business on Exchange.

AT the meeting of the board of governors of the Rubber Exchange of New York, Inc., on May 16, the proposed amendment to the by-laws which provides for trading in a second contract covering two additional grades of rubber—amber crepes and "browns"—was considered but decision in the matter was postponed until the next regular meeting of the board. If the amendment is adopted, as it is believed it will be, it will bring a substantial increase in the trading volume on the exchange.

The annual production of amber crepes and browns is estimated at 150,000 tons and the tire manufacturers are the largest consumers of these grades. In explanation of the proposed amendment, F. R. Henderson, president of the exchange, stated that its adoption would mean that the Rubber Exchange could trade in approximately 95 per cent of the grades of rubber now used by American manufacturers and would be an important step in providing additional facilities on the exchange for hedging by consumers as well as producers and importers.

"The board of governors have long felt that trading in these grades should be established," said Mr. Henderson, "but because of the additional load it would put upon the facilities of the exchange, action has been deferred until the exchange and clearing house could demonstrate that the extra business could be handled. The smoothness with which the exchange machinery has been operating resulted recently in the appointment of a special committee which has now recommended favorably on the proposed change.

"Trading in the new contract would require either a separate ring or post. On basic grades the difference in value on the new contract would be about one cent under the present standard grades contract."

Guayule Plants May Close

While the Intercontinental Rubber Company has petitioned the government of Mexico for permission to shut down their four factories on June 30, no definite decision has as yet been reached by the company as to its future policy in the production of guayule rubber, according to a statement from George Carnahan, president of the company. At the present time all four Mexican plants are operating.

The Mohawk Rubber Company, Akron, O., is expected to make application to list its common stock on the Chicago Stock Exchange.

The Dunlop Rubber Company, Ltd., is issuing 2,050,000 common shares of 6/8d par value to be offered to shareholders at 25 shillings per share on the basis of one new share for every ten shares now held.

WHEATLEY RUBBER CO. OPERATING AT CAPACITY

With additional molds and other new equipment recently installed, the production of the Wheatley Rubber Company of Fond du Lac, Wis., has reached 100 tires a day. A force of 25 men is now employed and more will be added as soon as other new molds on order are received. The prospects are that production will be steadily increased. At present the plant is operating at capacity. The firm is manufacturing tires for Fords and Chevrolets.

George H. Wheatley, president of the company, has been one of the pioneers in the tire manufacturing industry and has invented several features which are now in use in tire manufacture.

ARMY AND NAVY POOL THEIR TIRE PURCHASES

Under the new purchasing regulations which will be carried into effect from July 1 by the various departments of the government the army and navy will pool their tire requirements and purchase them under one contract. It is expected that the Navy Department will furnish the Quartermaster General of the Army with a statement of the number of tires needed and the War Department will combine it with its own requirements in advertising for bids. Deliveries will be made direct to the separate departments. The new plan is expected not only to make for economy, but will more or less standardize tire equipment for the two defense branches of the government, which will be of importance in time of war or emergency.

NAVY DIRIGIBLE AWARD IS STILL IN DOUBT

After considerable delay involving the reopening of new bids on the proposed navy dirigibles, Assistant Secretary of the Navy E. P. Warner has recently stated that the bids would be opened about July 26. The specifications now call for the construction of two dirigibles and details in connection with the proposed contract will be in the hands of interested parties within a few days.

The awarding of the contract, which a few months ago, seemed certain to be made in favor of the Goodyear-Zeppelin Corporation, was delayed at the last moment because of the late bid of the American Brown Boveri Company and in view of opposition to the Goodyear award at the time, the old bids were thrown out and new ones called for.

While the Goodyear-Zeppelin company is considered the favored bidder because of its position in the industry and the fact that the design which it submitted has been approved by the Navy Department, the Brown Boveri company have announced that its corps of experts gathered for the specific purpose of modeling a design which would win the contract from the Goodyear organization, has not completed its work and will not be ready for several weeks.

MAIL ORDER HOUSES CUT TIRE PRICES

Montgomery Ward and Company have announced a reduction in prices on all sizes of their "Riverside" line of balloon and cord tires, ranging from 5 to 15 per cent. At the same time their guarantee on this line was raised from 12,000 to 15,000 miles.

Sears, Roebuck and Company also announced that a reduction in their tire prices would appear in the new mid-summer price list which would come out the last of this month. No intimation of the size of the reduction was given but it was thought by the trade that it would closely approximate that made by Montgomery Ward.

No announcement of reductions has as yet come from the leading tire manufacturers who deny rumors that a cut will be made soon.

Rubber Statistics

The Rubber Growers' Association, London, has issued a booklet of statistical tables dealing with various aspects of the crude rubber industry. The acreage of rubber is given particular treatment, the Association's estimate being that there were 4,750,000 acres of rubber planted at the end of 1926. This estimate is given, however, with the reservation that the area of native rubber is uncertain and that the total may accordingly be incorrect. Other tables cover the production, consumption and movement of crude rubber in the last several years.

Army Group Tours Factory

A group of 20 officers and 80 enlisted men of the United States Army motor transport school, Camp Holabird, Baltimore, recently visited the B. F. Goodrich Company plant at Akron. The men were taken on a tour of inspection of the plant and heard talks on tire manufacturing and the care and repair of tires by factory department heads and by T. A. Aspell, assistant manager of the manufacturers' sales division. Luncheon was served to the group at the plant.

Charles MacIntosh and Company, England, have secured a contract for two miles of rubber flooring for the corridors of the new building of the Imperial Chemical Industries at Millbank, England. The patterns have been designed by Sir Frank Baynes.

Kautschuk, the well-known German rubber trade publication, has moved its offices from Berlin to 14-16 Königstrasse, Düsseldorf.

The Mansfield Tire & Rubber Company will shortly begin the construction of a small addition to their plant at Mansfield, O. Plans call for a steel and brick structure 45 by 68 feet to cost approximately $15,000.

DOMINION RUBBER CO. SHOWS INCREASED SURPLUS

The annual report of the Dominion Rubber Company, Ltd., of Montreal, Canada, shows sales during 1927 to have continued at a satisfactory figure and in fair comparison to the excellent year enjoyed by the company in 1926.

Net sales in 1927 totaled $19,201,648, compared with $19,708,040 during the previous year. After operating expenses, interest and preferred dividends, there remained a surplus of $744,780 as compared with $343,108 in 1926. This was equivalent to over 26 per cent on the common stock. Current assets increased almost three-quarters of a million to $9,067,727, while current liabilities were shown at $713,307, leaving a net working capital of $8,354,420.

CONVERSE RUBBER SHOE HOLDS ANNUAL ELECTION

At the annual meeting of the stockholders of the Converse Rubber Shoe Company, Malden, Mass., held at the general offices of the company, May 2, the following officers were chosen for the ensuing year: M. M. Converse, president; F. H. Caskin, treasurer; G. V. Claflin, secretary. The directors elected at the same meeting include in addition to the officers of the company, L. J. Cullen, R. C. Kelley and Hugh Bullock.

Diehl Resigns From Mason

John Diehl, member of the board of directors and sales manager of the Mason Tire & Rubber Company, Kent, O., has resigned, according to an announcement of W. A. Cluff, president of the company. No statement has as yet been forthcoming from Mr. Diehl as to his future plans nor has he made any comment upon his resignation. Mr. Cluff stated that he would make no appointment to fill the vacancy at the present time.

Mr. Diehl has been identified with the rubber industry for the last 25 years. He joined the Mason organization 11 years ago as head of the manufacturing sales.

Obituaries

Russell Parker

Russell Parker, president of Parker, Stearns & Sutton, New York City, rubber good manufacturers, died at his home at Forest Hills, Long Island, May 4, at 76 years of age. Mr. Parker was at one time president of the Alpha Rubber Company of Montreal. He was prominent in civic affairs and particularly active in the Red Cross and Navy League work.

Willett D. C. Van Etten

Willett de Camp Van Etten, son of J. de C. Van Etten, of Vansul, Inc., New York City, died of pneumonia at his home at Colonial Heights, Yonkers, N. Y., on May 12, after an illness of only one week. He was 17 years of age.

Names in the News

C. H. BURR, treasurer of the SKF Industries, Inc., of New York, manufacturers of ball bearings, has been appointed a member of the board of directors, secretary and assistant treasurer of the Motor and Accessory Manufacturers' Association, to fill the vacancy caused by the resignation of A. H. D. ALTREE, vice-president of the American Bosch Magneto Corporation. Mr. Altree resigned on account of the pressure of his other activities.

HARVEY S. FIRESTONE, SR., just before his return from vacationing in Miami Beach, Florida, was presented by the Committee of One Hundred, a group of leading citizens of Miami Beach, with a gold medal for his efforts in the fight which he waged against the British rubber restriction policy.

W. P. NAISMITH, president of the India Tyre & Rubber Company of Great Britain, Ltd., has been a recent visitor in Akron, where he is conferring with officials of the India Tire and Rubber Company. Mr. Naismith has been associated with the automobile and rubber industries for many years. He is credited with having established the first service station in Scotland. He is also president of Link Lands, Inc., a motor bus transportation company, and W. P. Naismith Company, Ltd., manufacturing chemists.

HARRY E. FIELDS, who recently resigned as vice-president in charge of sales of the Lee Rubber & Tire Company to go to the Pacific coast, has returned East for the summer and is making his home at Branford, Conn.

L. M. HENRY, formerly with the production control department of the Goodyear Tire & Rubber Company, has resigned after 10 years' service to accept a position with the Rubber Service Laboratories Company, Akron, O.

FRED W. CLIMER, of the Goodyear Tire & Rubber Company, has been appointed personnel manager at the Akron plant. Among other personnel changes within the company and made effective May 7, were the following: L. A. HURLEY was made assistant manager of the efficiency division; LEROY TOMKINSON was named manager of the "flying squadron" but will also retain his present duties as general foreman of the truck tire department; FRANK J. ENRIGHT is manager of the Goodyear Industrial University; JACK KIDNEY is named manager of the police, safety first and compensation divisions and N. R. MILLER becomes manager of the employment division.

C. T. MORLEDGE, recently appointed assistant sales manager of the India Tire & Rubber Company, has returned to Akron after an extended business trip through the southeastern states.

WILLIAM FELDENHEIMER of London, inventor of Catalpo, the well-known reinforcing pigment, was in New York last week where he visited Moore & Munger, American licensees of Catalpo. It is understood that while here, Mr. Feldenheimer studied the possibilities of widening the use of Catalpo in a number of other industries.

HARRY E. BLYTHE, formerly superintendent of the Goodyear California plant at Los Angeles, has been appointed assistant to P. W. Litchfield, president of the company and will return to Akron. He will also be

HARRY E. BLYTHE

in charge of personnel and special sales problems. Mr. Blythe's first position with the Goodyear organization was in the sales department. He was subsequently made manager of the Denver branch, and later district manager. He was made general superintendent of the California plant in 1921.

W. R. WHEATLEY, who has been with the India Tire & Rubber Company, Akron, O., for three years in the capacity of salesman and who was recently made manager of the Los Angeles branch office, has been promoted to the position of West Coast sales manager to fill the vacancy caused by the promotion of F. L. RYAN to general sales manager. C. M. GREENWOOD will succeed Mr. Wheatley at Los Angeles.

S. A. DAVIS, well known throughout the rubber industry as the representative of the C. P. Hall Company, will have charge of his company's Boston office at 24 Milk Street, and will cover the New England territory.

JOHN J. RASKOB, chairman of the finance committee of General Motors Corporation and one of the prominent figures in the American "rubber pool," returned recently from an eight-weeks' trip to Europe. In an interview with newspaper men upon his arrival, Mr. Raskob voiced the opinion that there was no danger of any immediate overproduction in the automobile industry and that the annual demand with replacements will continue in the neighborhood of 5,000,000 cars.

BRUCE R. SILVER, until recently district sales manager of the New Jersey Zinc Sales Company, at Cleveland, has taken up his new duties as manager of sales development at the New York headquarters of that company. During the world war Mr. Silver was chemical assistant to Thomas A. Edison, specializing in problems of submarine defense. After demobilization he became chief chemist for the Dunlop Tire & Rubber Company at Buffalo. He joined the New Jersey Zinc Company in 1922.

H. W. HUBER, vice-president and general manager of J. M. Huber, Inc., sailed for England on the "Aquitania'" on May 9, for a general business trip.

H. A. WINKLEMAN, chief chemist of the Philadelphia Rubber Works Company, recently left for England to be gone several weeks.

EDWARD H. GRAFTON, formerly chief chemist of the Murray Rubber Company, has become associated with the C. Kenyon Company, Brooklyn, N. Y. Prior to his connection with Murray, Dr. Grafton was with the Quaker City Rubber Company, Philadelphia.

P. P. TILLINGHAST has been appointed district sales manager of the Cleveland territory of the New Jersey Zinc Sales Company. Mr. Tillinghast joined his organization in 1903, becoming chief of the manufacturing department at Palmerton, Pa., and subsequently chief of the Canon City, Colorado, plant. In 1920 he became associated with the sales department, with headquarters at Cleveland. In the fall of 1925 he was made foreign representative and up until his present appointment was located in London.

JOHN P. HUBBELL, formerly assistant chief of research of the New Jersey Zinc Company, has become a partner in the firm of Singmaster and Breyer, chemical engineers and metallurgists, 420 Lexington avenue, New York City. Mr. Hubbell is a graduate of Williams College and Columbia University. Prior to his nine years' connection with the New Jersey Zinc Company he was with the General Chemical Company and the Gas Defense division of the United States Army.

THOMAS MORRISON, JR., vice-president of the Murray Rubber Company, Trenton, N. J., has announced his engagement to Miss Sara Mary Barnes of Haverford, N. J.

CHARLES E. STOKES, SR., vice-president of the Home Rubber Company, Trenton, N. J., and Mrs. Stokes have returned from an extended trip to Chicago.

R. G. SHIRK, formerly treasurer of the Star Rubber Company, Akron, has joined the Akron organization of Otis & Company.

Timely Financial News

GOODYEAR EARNINGS DECLINE IN QUARTER

Sales Drop Off Heavily in March and Decline From Earnings in Corresponding Quarter Last Year is About 30%—Financial Position is Strong.

THE net profits of the Goodyear Tire & Rubber Company for the first quarter of the current year are reported to be appreciably lower than the return for the corresponding period last year. The first two months of 1928 showed up well in comparison to the same two months last year but sales fell off greatly in March and it is predicted by Dow, Jones and Company that the decrease in the quarterly profits will approach 30 per cent.

A pessimistic view is accordingly being taken of the second quarter. Dealers are reported to be holding back from placing the usual seasonal orders. It is therefore thought that the earnings for the first half of the year will not be much more than $3 to $3.50 per share. During the first half of 1927 the company earned $4.91 per share. The estimate of earnings for the current year does not take into consideration the possibility of charging off on crude rubber inventories or the necessity of setting up further reserves for contingencies, either of which would cause much lower earnings.

Rubber Inventory Position Good

Considering the position of the Goodyear company in the rubber industry, its crude rubber inventory position is said to be as favorable as could be expected and that all high priced rubber will have been converted into finished goods by the middle of summer. The general financial position of the company remains very satisfactory, however, and the company is considered to be strongly entrenched to stand the present uncertain period in the industry.

G. M. Votes Dividends

Directors of the General Motors Corporation recently authorized the payment to stockholders of one of the largest cash dividend disbursements ever made in the history of American industry, aggregating $58,900,830. Included in this amount was an extra disbursement of $2 per share on the 17,400,000 shares of common stock.

Alfred P. Sloan, Jr., president of the corporation, announced that current cash and marketable securities of the company aggregated about $220,000,000.

Net income of the corporation in the first quarter of 1928 totaled $67,567,149, of which $64,856,465 was applicable to common stock. Earnings in the current quarter, it is expected, will run well above that figure. Wall Street estimates based on the business done thus far have placed the 1928 net income at close to $300,000,000.

CATALPO!

RUBBER COMPANY STOCKS STEADY ON EXCHANGES

Little activity can be noted on the various stock exchanges in the stock issues of the rubber manufacturing companies. Mohawk common seems to lead the list as a favorite and has climbed during the last fortnight to a new high record of 165. It has since receded, however, to 140 but continues to be actively traded in. It is reported that the company will soon apply to the Chicago Stock Exchange to list its stock on the floor. Rumors still persist in Akron and Cleveland linking two or more of the smaller rubber companies in a proposed merger.

Aside from Mohawk common no new high records were recorded during the last two weeks. On the other hand Ajax and Fisk touched new low levels, only slightly off, however, from their quotations of a fortnight ago. In spite of the generally heavy trading on the exchanges in other industrials no marked interest has been manifested in rubber issues and in volume of transactions the trading has been extremely light.

The low price of crude rubber and the report that they would probably close down their Mexican plants has probably contributed to the further decline in Intercontinental.

The plant of the Silver Lake Company, at Newtonville, Mass., manufacturers of braided cord formerly used in tires, which has been idle for seven months since the removal of the machinery to a Georgia location, has been sold to the National Packaging Machinery Company.

Late Stock Prices

	Last Price		—1928—	
	May 18	May 3	High	Low
Ajax	9½	10⅝	14⅜	9¼
Firestone	175	184	232	170
do 6% pfd.	110	110⅛	112	109
do 7% pfd.	109¼	109	111½	108
Fisk	15¼	16	17⅜	14½
do 1st pfd.	89¾	83	91½	82
General	170	175	190	165
do pfd.	100	100½	111	100
Goodrich	87	91⅛	99⅜	78¼
do pfd.	114½	115	115	109½
Goodyear Com.	52	54⅜	72½	50⅛
do. pr. pfd.	95½	95½	99½	92½
do. pfd.	100	100	120	100
Hood	—	33½	43	33½
India	41	33	45	16
Intercontinental	12½	13½	21⅜	11¾
Kelly Springfield	22	22⅞	27⅜	15
do. 1st. pfd.	63	—	80	58
do. 8% pfd.	65½	—	84	55¼
Lee	22	23¼	24½	17½
Miller	19¼	20	27½	18⅞
do. pfd.	70	72	97½	70
Mohawk	140	120	165	29¾
do. pfd.	84½	85	85	55
Seiberling	45	49½	49½	35
do. pfd.	104¾	104	105	102
U. S. Rubber	43¾	43¾	63¼	40
do. pfd.	76⅞	80	109¾	76½
U. S. Rubber Reclaiming Com.	11½	—	16½	11½

AMERICAN DUNLOP CO. SHOWS BIG SALES GAINS

Sales of the Dunlop Tire & Rubber Corporation, of Buffalo, N. Y., for the first quarter of the current year have been approximately 8 per cent better than in the corresponding period of 1927, according to a statement from E. B. Germain, president of the corporation, to Dow, Jones & Company. April sales have exceeded all records and were 43 per cent greater than the corresponding month of last year.

The production of golf balls is in excess of 300 dozen per day, but is not sufficient to meet the present demand and imports of their British-made balls still continue high.

The corporation, which is the subsidiary of the British company, is reported to have increased their business during 1927 by 41 per cent. The American tire and rubber industry during the same period showed only an increase of 12 per cent.

GATES PAYS SUBSTANTIAL PROFIT-SHARING DIVIDENDS

The Gates Rubber Company, Denver, Colo., has recently distributed bonuses to employees for the first quarter of 1928. Under the terms of the Gates profit-sharing plan, inaugurated nine years ago, no deduction for invested capital is made prior to dividend distribution on a basis of salary earnings.

For the first quarter of this year those entitled to full participation in the plan have received checks representing 11.37 per cent of their salaries for the first quarter, which reflects the strong profit position of this western rubber manufacturer.

ELKHART RUBBER EXTENDS GROUP INSURANCE PLAN

Health and non-occupational accident insurance has been added to the group insurance program covering the employes of the Elkhart Rubber Works, of Elkhart, Ind., through contract with the Metropolitan Life Insurance Company. The original plan, which was underwritten by the same insurance company, provides the employes with more than $100,000 of life insurance.

Each subscribing employee will be paid $15 a week when unable to work due to sickness from any cause, or injury received while off the job. Under the policy, these payments will continue for a maximum of thirteen consecutive weeks.

The New Jersey Zinc Company reports for the quarter ended March 31, a net income of $1,649,027 after taxes, depreciation and other charges. This equals $3.36 a share on the 490,819 shares outstanding. Surplus after dividends amounted to $667,395 as compared with $787,848 in the corresponding quarter of 1927.

Rubber News Around the World

BRITISH MOTORISTS TAXED 4d A GALLON FOR PETROL

The new tax of 4d. (8 cents) per gallon on gasoline, recently imposed in Great Britain, has been a blow to British motorists and has met with widespread opposition. The new tax, which is included in Mr. Winston Churchill's 1928 budget, coupled with the prevailing tax of £1 per horsepower on all motor vehicles. imposes a distinct burden on motorists and may have a decided reaction on automobiling and the motor industry throughout the British Isles.

It is estimated that the new duty of 4d. per gallon on light oils and gasoline will yield £14,000,000 in revenue during the current fiscal year. With the imposition of this duty plus the horsepower tax, a motorist owning a 12 h.p. car and traveling 10,000 miles per year would pay into the British treasury £18, 17s, 6d. (approximately $90). The tax is collected by the gasoline suppliers at the time of sale, who by way of "rubbing it in," exact an additional ¼d. for expenses incident to collecting and handling the tax.

PALMER, LTD., INTRODUCES IMPROVED CYCLE TIRE

It is claimed by the Palmer Tire, Ltd., of London, that its contribution toward the improvement of the pneumatic tire has been greater than that of any other make. The firm's latest innovation is a motorcycle tire with a round tread on which the non-skid device consists of seven bars. No matter what may be the angle of the machine, some part of the non-skid tread is maintained at a right angle to and in active contact with the road. It has been adopted as standard equipment on "Matchless" motorcycles for the 1928 season.

This new seven-bar tread is claimed to have the advantage of enabling motorcyclists to safely negotiate very rough places, streetcar lines and ruts.

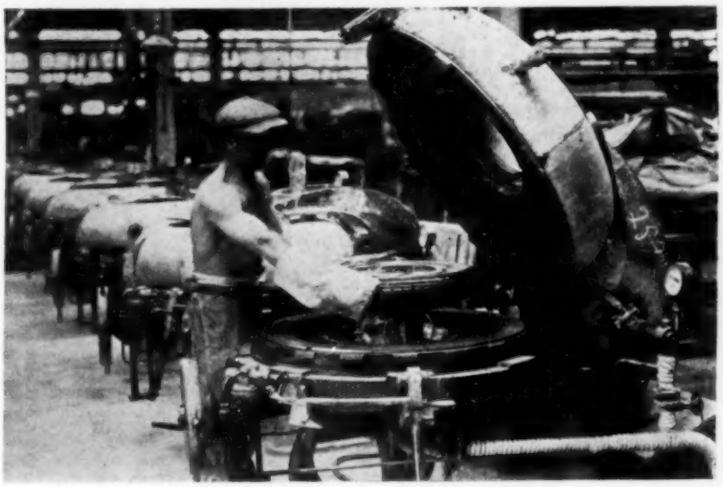
North British Rubber Co.

The trading profit of the North British Rubber Co., Ltd., for 1927, as stated by the directors, was £88,150 which, with the balance brought forward from 1926 amounts to £127,089. The trading profit for 1927 was less than that of 1926, due mainly to the effects of the coal strike and unseasonable weather conditions. In spite of steady and continuous fall in price during the year, the turnover of the company has been well maintained.

Austrian Industry Suffering

Coincident with the depressed industrial conditions prevailing in Austria, the rubber manufacturing trade has suffered a relapse from the fairly prosperous period of 1926. Exports of rubber manufactured goods have declined during the last year and the prospects for the future depends largely on the general economic conditions which surround Austria. Hope is being placed by the rubber manufacturing interests, however, on the success which has been attained with certain rubber novelties which are practically the only Austrian rubber products which have been enjoying a fair trade.

Individual Tire Vulcanizer in Use in Germany



THE accompanying illustration shows a battery of individual tire vulcanizers in operation in the Dunlop factory at Hanau, Germany. Note the central device in the vulcanizer in the foreground for raising the tire clear of the lower half of the mold. It is operated by the hand gear wheel, which is plainly seen at the front of the machine. At the recent annual meeting of the Dunlop parent company in London, Sir Eric Geddes, the chairman, said quantity sales of the German factory had increased 42 per cent over previous years and production is increasing each month.

New Merchandising Policy

A new policy of marking their brands of garden hose has been announced by the North British Rubber Company, Ltd. Stocks of branded grades of garden hose will be offered to the hardware trade on consignment, with the option of returning unsold coils at the end of the summer and the added advantage of deferring payments until July 31. The British trade is wondering if this new merchandising scheme is but a forerunner of a policy of consigning other rubber goods stocks on a wholesale consignment basis.

Greengate & Irwell, Ltd.

A net profit for the year ending Dec. 24, 1927, amounting to £91,632 was reported at the annual meeting of the Greengate & Irwell Rubber Co., Ltd., which was held recently at Manchester, England. The total income, including that coming from investments, was £96,660 as against £48,001 last year. The directors recommend a final dividend of 1s. 6d. per share, which makes 2s. 3d. per share on the ordinary shares of 16s. each, or 14 1-6 per cent, against 9 3-8 per cent last year.

SO. AMERICAN TRADE IN AMERICAN RUBBER SHOES

Exports of rubber shoes from the United States to South America increased from 128,209 pairs in 1926, valued at $98,923, to 369,185 pairs in 1927, valued at $231,422, an increase of 188 per cent in volume and 134 per cent in value, according to the reports of the Department of Commerce. Argentina was the outstanding market in 1927, taking 49 per cent of the total volume, and was followed by Brazil with 21 per cent, and Chile and Uruguay both taking 12 per cent.

EXPORTS OF RUBBER SHOES TO SOUTH AMERICA

	1927	
	Quantity Pairs	Value
Argentina	181,037	$100,024
Bolivia	1,395	1,151
Brazil	75,752	51,492
Chile	44,789	30,913
Colombia	15,725	12,245
Ecuador	165	85
British Guiana	6,252	3,276
Surinam	456	381
Peru	646	672
Uruguay	42,748	30,944
Venezuela	220	239
Total	369,185	$231,422

For the last few years American rubber shoes have steadily usurped Great Britain's hold on the market in the Argentine. In Brazil the increase in trade has been all the more noticeable.

CATALPO!

Current Crude Rubber Items

RUBBER GROWERS' ASS'N HOLDS ANNUAL MEETING

Eric Macfadyen, the Retiring Chairman, Reports Substantial Progress Within the Association During Past Year—William Duncan Elected as New Chairman.

THE annual general meeting of the British Rubber Growers' Association, Inc., was held in London on April 26. In his address as the retiring chairman, Eric Macfadyen gave a comprehensive survey of the present rubber situation in the light of the recent developments in connection with the abolition of the restriction policy and spoke in detail of the progress made within the Association during the past year. In attempting to suggest a solution for the position in which the industry finds itself as a result of the sudden scrapping of the restriction scheme, Mr. Macfadyen recommended the consolidation of estates into larger units as a means of effecting economies both in growing and marketing.

In regard to the part played by the Association in the recent deliberations of the Committee of Civil Research, Mr. Macfadyen said:

Macfadyen's Remarks

"A special committee had been set up by the council of the Association towards the end of 1927 to deal with restriction questions generally, and this committee prepared the evidence which was submitted on behalf of the Association to the Committee of Civil Research. As the proceedings were confidential, this evidence cannot be quoted here—no breach of confidence, however, is involved in stating that in preparing their evidence our committee had the advantage of consulting beforehand with the representatives of the Society of Motor Manufacturers and Traders and the India Rubber Manufacturers' Association, and that almost complete agreement was arrived at on the advice to be offered to the Government. That advice had been rejected, and all restrictions in Malaya and Ceylon are to be removed on November 1 next."

The membership of the Association now totals 1,089, consisting of 648 companies, representing an issued capital of £111,201,395 and a planted acreage of 1,673,310; and 441 individual members.

Sir Edward Rosling and Eric Miller were unanimously reappointed representatives of the Association on the Colonial Office Advisory Committee.

The Association, upon the nomination by the retiring chairman, unanimously elected William Duncan as the new chairman for the ensuing year. Mr. Duncan has been one of the best known planters and leaders of the industry for many years. His wide practical experience, both as a rubber planter in Malaya and as a director in a number of plantation companies, makes him particularly well equipped for his new office. He has also held many important administrative positions in the East and has served on special missions on behalf of the Malayan government to the Dutch East Indies. During the past year he served as vice-chairman of the Association.

FORD CONCESSION IS AGAIN ATTACKED

In the course of a speech attacking the Ford concession in Brazil, Senator Souza Castro of the State of Para declared that under the terms of the Ford contract, the State had vitiated the national authority to select emigrants coming into the region and had given Ford the right to establish colonists and import foreigners without restrictions of any kind. Governor Bentes of Para in reply vigorously asserted that the contract had been made in the most open manner and in entire good faith.

Unconfirmed reports state that investigations in the area embraced by the concession disclose the existence of petroleum in the region.

Continental Caoutchouc

The Continental Caoutchouc and Gutta-percha Company of Berlin, Germany, which passed its dividend in 1926, has recently declared a six per cent dividend for the current year, the gross profit being $1,240,000 or nearly double that of last year.

QUIET TONE MARKS TRADING ON EXCHANGE

Market Settles Down to Conservative Operations After Weeks of Nervous and Speculative Trading—Spot and Nearby Positions at 18.50 Cents.

TRADING on the Rubber Exchange of New York the last two weeks was characterized by a moderate activity but prices have remained more or less steady around 18.50 cents for nearby positions. The period of speculative and nervous trading which followed the sudden announcement of the British government regarding restriction has given way to a more normal tone and the market has settled down to conservative operations.

In the volume of sales handled during the last two weeks the transactions on the Exchange were light and in marked contrast to the hectic trading during the several previous weeks. Fluctuations in price levels day by day have been slight and no sharp variation between high and low levels can be noted.

Traders are still worrying over the probabilities of the market on and after November 1 next and while this anxiety will probably continue to put a stop to any bullish trend the statistical position of rubber has improved to a point where further declines in prices are not probable.

The market has been somewhat encouraged by the factory interest which has been active and particularly by the interest from abroad. At the same time stocks in London have declined to 50,867 tons, the lowest figure in over a year and consumption within the United States is continuing at a satisfactory rate.

The table below indicates the daily movements and the volume of sales on the Exchange for the last fortnightly period.

Closing Prices on Rubber Exchange of New York, Inc.

MAY 5 TO MAY 19,1928

	Date	Spot	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Sales*
May	5	19.00	18.70	18.90	19.20	19.30	19.40	19.40	19.40	19.40	19.50	19.50	19.50	19.60	1,108
	7	18.30	18.30	18.40	18.40	18.50	18.60	18.70	18.80	18.90	18.90	18.90	18.90	19.00	1,110
	8	18.90	18.80	18.90	19.10	19.20	19.30	19.40	19.50	19.50	19.50	19.50	19.50	19.60	782
	9	18.60	18.50	18.60	18.70	18.80	18.80	18.90	18.90	19.00	19.00	19.10	19.10	19.10	560
	10	18.30	18.20	18.40	18.50	18.60	18.80	18.80	18.80	18.90	18.90	18.90	18.90	19.00	485
	11	18.50	18.50	18.60	18.80	18.90	19.00	19.00	19.00	19.00	19.10	19.10	19.20	19.30	494
	12	18.50	18.50	18.70	18.90	18.90	19.00	19.00	19.00	19.10	19.10	19.10	19.10	19.20	136
	14	18.80	18.70	18.90	19.00	19.10	19.20	19.30	19.30	19.30	19.20	19.30	19.30	19.40	1,366
	15	18.60	18.60	18.80	18.90	19.00	19.00	19.10	19.10	19.20	19.20	19.30	19.20	19.30	228
	16	18.70	18.50	18.60	18.70	18.80	18.90	19.00	19.10	19.20	19.20	19.20	19.20	19.20	406
	17	18.40	18.30	18.40	18.50	18.60	18.60	18.70	18.70	18.80	18.80	18.80	18.80	18.90	521
	18	18.20	18.20	18.30	18.50	18.50	18.60	18.70	18.70	18.80	18.70	18.70	18.70	18.80	472

(*) In lots of 2½ tons each

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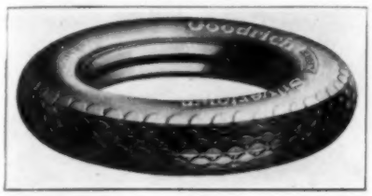
Rubber Goods and Specialties

Non-Skid Airplane Tire

Recognizing the rapidly increasing use of brakes on airplane wheels, the B. F. Goodrich Company has developed an airplane tire with a non-skid tread, which supplies traction along with sturdiness.

The new tire is revolutionary in the airplane tire field as it is the first time that



Goodrich Airplane Tire

airplane tires have been introduced with a non-skid tread design. Heretofore a plain tread tire has been considered sufficient for airplane equipment inasmuch as a plain tread offers as little resistance as possible on the take-off and affords an easy cushion on landing.

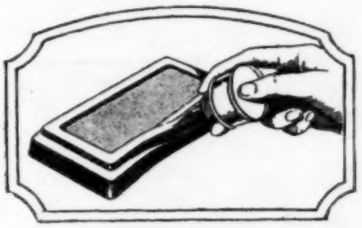
The new airplane tire has heavy elliptical cleats on the tread with similar cleats extending up on the side walls. It provides a tire which is claimed to not only prevent skidding but supplies adequate traction in mud or soft ground.

Rubber Cleated Soles

A new departure in rubber soles is the cleated sole which has been developed by the Beacon Falls Rubber Shoe Company, Beacon Falls, Conn., and is being offered to the trade as the "Top Notch Cleeto" brand of their canvas rubber-soled footwear. A

Beacon Falls Cleated Sole

patent for the new design has been applied for. The shoe is a strong, durable, outdoor shoe, suitable for all sports and has a special appeal to Boy Scouts and youths. It is claimed by the manufacturers that the rubber cleated sole has all the wearing qualities of the ordinary cleated shoe plus the lightness, springiness and easiness to the feet which comes from the material being rubber instead of wood or metal. The shoes are made in grey, white or brown, with soles and trimming to harmonize.



Flexible Rubber Ink Pad

The Mun-Kee silent stamp pad, manufactured by the Mun-Kee Products Corporation, Newark, N. J., is built on a flexible rubber base. Depressions on the underside of this base form a pneumatic air cushion, which makes the pad noiseless and prevents slipping or scratching on the desk. Inside of the base are removable felt reservoirs which hold and disperse the ink to the entire under surface or the filler or stamping surface. Re-inking is done by inserting the spout of the Mun-Kee ink can under the rubber flange and under the filler and squirting the ink into the reservoirs. Then by pressing the rubber stamp to the surface of the filler the ink is brought up to the top by capillary attraction.

Threaded Rubber Washer

A threaded rubber washer for hose packing is being marketed by the Mueller Brass Company of Port Huron Mich. in conjunction with their line of hose nozzles and couplings. It is claimed that the threaded rubber washer is better insurance against a leaky connection than the commonly-known variety of washer.

Desk Sponge Cup

Among the new office specialties made of rubber which have appeared on the market is the "Sunruco" sponge cup, manufactured by the Sun Rubber Company, Barberton, O. It is made entirely of rubber of the highest quality and is of distinctive construction. The flared base prevents the cup from tipping and the concave bottom creates a vacuum when placed on the desk or flat surface, making it impossible for the cup to skid or slip. A specially grooved construction at the base of the receptacle holding the sponge provides a reservoir for an extra water supply. Another feature is the corrugations which appear on the side of the opening preventing overflow and permitting drainage into the reservoir.

Fountain Tooth Brush

A fountain tooth brush, made entirely of rubber, is the latest druggist sundry to be offered on the market by the Healthex Corporation, 45 West 45th Street, New York City. The brush, as shown in the accompanying illustration, is not only for cleaning the surface of the teeth but is designed to spray out the food matter and gases from between the teeth as well as under crowns

and bridgework. It can also be used in massaging the gums as the rubber nipples in the brush, though sufficiently hard to allow a rigorous brushing of the teeth, are soft enough to not injure the gums. The article sells complete for $1.00 retail and is packed in an attractive carton for display purposes.

"Batho" Swimming Case

A useful novelty designed for men and women bathers is the new "Batho" swimming case for keeping cigarettes, matches, powder puff or vanity case bone dry while bathing. The new product is being marketed by the Spang Novelty Corporation, 2 West 45th Street, New York City. The case is made of rubberized sheeting in attractive colors and designs, and holds a metal container for cigarettes and matches or women's compact. The opening at the top is made securely watertight by a strong spring catch

Novelty Swimming Case

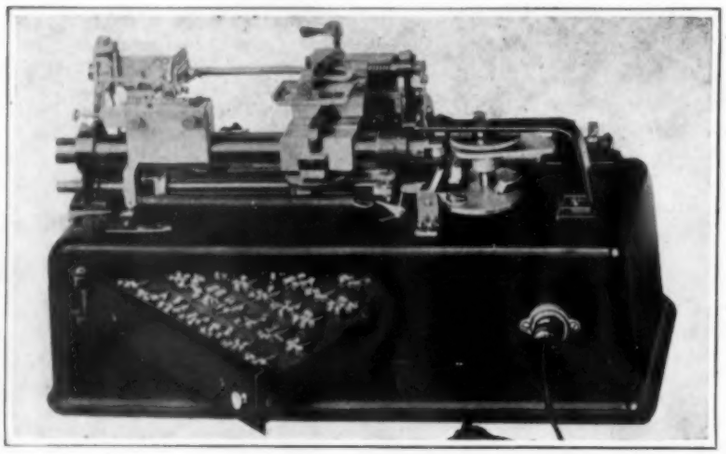
covered by rubber tubing. It is constructed with a clasp which can be conveniently and securely attached to the belt of the bathing suit in the position as shown in the accompanying illustration.

New Miller Balloon Tire

The Miller Rubber Company, Akron, O., have announced as a new addition to their line a six-ply, heavy duty, passenger balloon tire. It is designed to meet the requirements of the speedier and more expensive cars. The tread includes two running strips near the edges with the shoulder extending well down on the sidewalls. In the center and between the running strips, the road-gripping design is fashioned in tougher and thicker tread.

New Equipment for Rubber Factories

Engraving on Rubber



Engravograph Suitable for Hard Rubber

A MACHINE for engraving on hard rubber, celluloid and metals has been developed, and is being marketed by the Engravograph Corporation, 12 Vestry Street, New York City. The machine, as shown in the accompanying illustration, is a small, compact electric and automatic device, 18" long, 8" deep and 10" high. No skilled operator is necessary. The lettering or design to be engraved on the object is set up in type and placed in the holder at the left side of the machine. The object to be engraved is placed in the chuck at the front center of the machine. The starting lever is then pressed and the engraving follows automatically. No further attention is needed, and in approximately three minutes the engraving is completed. The machine is then stopped automatically. It engraves anywhere on a flat surface 1½" down from the top, or 3" in from the left on objects 1" or less in thickness and up to 5" in length, or anywhere on a cylinder or eliptical object 1" or less in diameter, 3" in from the left. Special object holders and chucks furnished on order for speed engraving on quantity production.

The machine is particularly adaptable for engraving advertising novelties of hard rubber, cigarette holders, combs, fountain pens and other specialties. It is of particular interest to the hard-rubber manufacturing industry in the fabrication of such novelties from hard rubber tubes or sheets.

Nagle Opens N. Y. Office

The Nagle Machine Company, Erie, Pa., have announced the opening of an office in New York City, at 296 Broadway in charge of Harry J. Smith. Mr. Smith will handle the eastern territory and the export trade. The Nagle line of rubber machinery consists of tubers, strainers, refiners, mills, calenders, washers, crackers, presses and dryers.

Banner Bead Taping Machine

IN order to do away with manual winding of the ends of beads, the Banner Machine Co., Columbiana, Ohio, have recently brought out a bead taping machine, illustrated herewith. This machine winds a narrow piece of frictioned fabric, properly tensioned, around both ends of the bead at a speed of 15 beads per minute.

The manual operation of the machine is confined to placing the bead into the shuttle, the taping being automatically performed and the taped bead automatically discharged from the machine, catching on a hook which is provided on the pedestal of the machine.

The automatic features of the Banner bead taping machine permit taping of the bead to be combined with the bead winding operation. The winding machine attendant places the bead into the taping machine and no further attention is required. The material used for taping the ends of the beads is made of a 7-ounce, .012 gauge osnaburg, frictioned on both sides. This material is provided by the manufacturer in rolls 12 inches in diameter and 1 inch wide.

Banner Bead Taper

Channel Cementing Machine

THE United Shoe Machinery Corporation, Boston, Mass., has developed a special type of machine for applying rubber cement in the manufacture of shoes, which they are offering to the trade as their Channel Cementing Machine Model A. The machine is used for cementing channels, bottoms, welts and inseams.

It is equipped with a rotating bristle brush of a size particularly adapted for cementing deep channels of high arched shoes and the flow of cement is controlled so as to prevent wastage from overflow, dripping or evaporation. Brushes of different widths are supplied to meet the varied requirements of the shoe manufacturer. It is motor driven, the motor being integral with the machine. The manufacturers claim that cementing operations can be accomplished with the machine with less wastage of cement than has heretofore been thought possible. The machine is also claimed to be a time-saver as well as economical in operation.

Simple enough to be practical. Free from complications and adjustments. Substantial and durable. As well as accurate, easy to read and easy to operate. Scott Testing Machines meet commercial requirements and conditions without sacrificing scientific exactness.
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ARGUMENTS ARE HEARD IN GOODYEAR MINORITY SUIT

The suit of the minority stockholders of the Goodyear Tire & Rubber Company to force the payment of $16,000,000 in back dividends on the company's old preferred stock was heard recently before the Common Pleas Court of West Union, O., and counsel for both sides have been instructed to file briefs. Oral arguments in support of the briefs will be heard May 25.

The suit was brought by Kent P. Johnson in behalf of a group of minority stockholders in an endeavor to halt further steps in the $60,000,000 refinancing plan which was adopted by the majority of stockholders in 1927.

Prominent counsel has been engaged on both sides. Hon. Newton Baker, ex-Secretary of War in the Wilson Cabinet, and Joseph C. Hostetler are representing the company while John A. Cline and R. A. Roehm are attorneys for Johnson.

Rex Tire & Rubber Co.

The proposed receiver's sale of the Rex Tire & Rubber Company, Wadsworth, O., notice of which was made in THE RUBBER AGE of May 10, did not materialize in view of the fact that bids for the property did not reach the minimum price of $40,000 as set by the court and efforts will now be made by the receiver to secure the court's permission to bring about a satisfactory private sale.

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One Farrel Rubber Dust Grinding Mill, complete with reduction gear drive. Rolls 13″ and 17″ by 20″; ratio 1½ to 1. Used only few times; condition like new. Mill can be seen in operation at an time. Rubber & Celluloid Products Company, 56 Ferry St., Newark, N. J.

1 Watson-Stillman 200-ton Sagger Press, complete with pump. 1 Devine Vacuum Pump and Impregnating Tanks. Igoe Brothers, Ave. A. and Poinier St., Newark, N. J.

For Sale—By the Dayton Rubber Mfg. Co. Dayton, Ohio. One 54″ Birmingham Calender, completely equipped, including 75 HP. direct current motor. In very satisfactory running condition. Reason for selling: changing to different method of operation. Has been in daily use. Price $2,000.00 f.o.b. Dayton, Ohio.

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CATALPO!

LATE MARKET PRICES

Crude, Scrap & Reclaimed Rubber - Cottons and Fabrics

MAY 19, 1928

COTTON

THE raw cotton market has been considerably unsettled during the fortnight but price levels have returned to very nearly the same as two weeks ago. The season is exceptionally backward from the standpoint of favoring the new crop. There are indications, however, of an improvement in the milling industry. A total of 525,158 bales were reported consumed by mills during April and sales were placed at 17.2 per cent in excess of production, while unfilled orders at the end of the month showed an increase of 21.9 per cent. In the face of this encouragement in the manufacturing industry plus the prevailing unfavorable weather conditions for the new crop, the undertone in the market has taken a decided bullish turn and the sentiment seems to persist that cotton prices will be maintained at the present levels for some time or at least until there are further developments affecting the new crop.

High, low and closing prices as of May 18, were as follows:

	High	Low	Close	Close
	May 18			May 3
May	21.56	21.17	21.17	20.83
July	21.32	20.90	20.92	20.60
August	20.97	20.97	20.97	20.56

Tire Fabrics

Prices of tire fabrics have responded to a good volume of business and have increased slightly. Business for July delivery has been particularly prominent. Tire companies have been actively in the market with an apparent desire to cover further on their future requirements. Several factories report that they have even been asked to anticipate deliveries, but in view of the present rate of production, have not been able to do so. Late quotations follow:

CORD			
Peeler, carded, 23/5/3	lb.	.45 @	.47
Peeler, carded, 23/4/3	lb.	.46½@	.48
Peeler, carded, 13/3/3	lb.	.43 @	.43½
Peeler, carded, 15/3/3	lb.	.44 @	.44½
Egyptian, carded, 23/5/3	lb.	.57 @	.59
Egyptian, carded, 23/5/3	lb.	.60 @	.62
CHAFERS			
Carded American, 8 oz.	lb.	.39 @	.40½
Carded American, 10 oz.	lb.	.41 @	.42
Carded American, 12 oz.	lb.	.41 @	.42
Carded American, 14 oz.	lb.	.40 @	.43
LENO BREAKER			
Carded American, 8¼ oz.	lb.	.40 @	.43
Carded American, 10¼ oz.	lb.	.40 @	.43
SQUARE WOVEN			
Carded American, 17¼ oz. 23-11 ply	lb.	.45 @	.46½
Carded American, 17¼ oz. 10-5 ply	lb.	.38½@	.40

Sheetings

The sheeting market has held firm during the last two weeks, but inquiries have been scarce and sales were few and in small quantities.

40-inch, 2.50-yard	yd.	.12½@	.12¾
40-inch, 2.85-yard	yd.	.11¾@	.11½
40-inch, 3.15-yard	yd.	.12 @	.12⅛
40-inch, 3.60-yard	yd.	.10 @	.10¼
40-inch, 3.75-yard	yd.	.09¼@	.09¼
40-inch, 4.25-yard	yd.	.08⅛@	.08¼

Ducks

The market prices of ducks have advanced slightly during the last two weeks and are firm in the face of a satisfactory volume of business. Within the last few days, however, buyers have been holding back, but the mills are reported to be firmly adhering to the higher price levels. Mills stocks are reported as being gradually reduced. Latest quotations are as follows:

Belting and Hose	lb.	.33 @	.33½
Enameling	lb.	.35 @	.37
Single filling	lb.	.15¼@	.17½
Double filling	lb.	.17½@	.18½

RECLAIMED RUBBER

The demand for reclaimed rubber still continues at almost record peaks in spite of the present low crude rubber prices. The ratio of reclaimed used during April to the total tonnage of crude rubber consumed stood at 51.6, which was very near the highest percentage yet attained. In the face of this surprising situation the prices in the reclaimed market have remained firm and practically unchanged for the last fortnight. The latest quotations are reported as follows:

High Tensile			
Super-Reclaim No. 1 Black	lb.	.14 @	.14¼
Super-Reclaim No. 2 Black	lb.	.11¾@	.12
High Tensile Red	lb.	.13¾@	.14
Shoe			
Unwashed	lb.	.07¼@	.07½
Washed	lb.	.10 @	.10¼
Tube			
No. 1 (Floating)	lb.	.14½@	.15
No. 2 (Compounded)	lb.	.11½@	.11¾
Tires			
Black, washed		.09½@	.10
Black, unwashed		.07¾@	.08
Black selected tires	lb.	.08¼@	.08½
Dark Gray	lb.	.10½@	.11
Light Gray	lb.	.12 @	.12½
White	lb.	.14 @	.14½
Truck, Heavy Gravity	lb.	.07¼@	.07½
Truck, Light Gravity	lb.	.07¾@	.08
Miscellaneous			
Mechanical Blends	lb.	.07 @	.08
Red	lb.	.13½@	.14

Scrap Rubber

The scrap rubber market has shown slight recessions in prices on the more popular grades, but in view of the continuing high demand from reclaimers and difficulties in acquiring stocks, the majority of the grades have been holding their own. The prevailing low crude rubber prices do not seem to have affected the scrap market or the apparent satisfactory demand which is still being enjoyed by the reclaimers. Late quotations follow:

(Prices to Consumer)

Auto tire peelings	ton	35.00	@37.00
Standard White auto	ton	55.00	@57.50
Mixed auto	ton	24.00	@25.00
Bicycle tires	ton	28.00	@30.00
Clean solid truck tires	ton	22.00	@24.00
Boots and shoes	lb.	.01½@	.01⅝
Arctics, trimmed	lb.	.01⅛@	.01¼
Arctics, untrimmed	lb.	.01 @	.01¼
Inner tubes, No. 1	lb.	.07⅛@	.07⅝
Inner tubes, No. 2, compounded		.04¼@	.04½
Inner tubes, Red	lb.	.05½@	.05⅝
Air Brake Hose	ton	38.00	@40.00
Rubber Hose	ton	18.00	@20.00

CRUDE RUBBER

THE crude rubber market has experienced a period of quiet trading during the last two weeks, with prices holding more or less firm around 18½ cents for spot and nearby deliveries. Demand has been fairly active and has been sufficient in volume to hold price levels steady. Very little fluctuation has occurred in the daily tradings.

While April consumption was disappointing as compared with the high absorption during March, it was sufficient to give some encouragement to the market. The statistical position of the commodity can be said to have improved slightly from the viewpoint of traders. Stocks in London have continued to show a slight decline and invoiced shipments to the United States have also fallen off. The market seems to have become thoroughly reconciled to the present low price levels and no pronounced change in the price list is expected. Any bullish tendencies are immediately stopped by the bugaboo of November 1 next and the contemplation of an accumulation of rubber being dumped into the market at that time.

Low prices have resulted in helping the general position of rubber somewhat. Germany is reported as taking advantage of the easier market and is buying heavily and record deliveries have also been made to British factories.

Prices quoted on the New York outside market at the close of business on May 18, were as follows:

Plantations—		
Ribbed Smoked Sheets—		
Spot	.18¾@	.18⅞
May	.18⅝@	.18¾
June	.18⅝@	.18¾
July-Sept.	.18½@	.18⅝
First Latex, crepe spot	.18⅝@	.18⅞
Amber Crepe, No. 2	.17¾@	.18
Amber Crepe, No. 3	.17¼@	.17½
Amber Crepe, No. 4	.17 @	.17¼
Brown Crepe, Rolled	.16¼@	.16½
Brown Crepe, Clean, thin	.17 @	.17¼
Brown Crepe, specky	.16¾@	.17
Liquid Latex, per gal.		@ 1.50
Paras—		
Up-river Fine	.20 @	.20¼
Up-river Medium	Nominal	
Up-river Coarse	.15 @	.15¼
Acres Bolivian, fine	.20¼@	.20½
Caucho Ball, Upper	.15½@	.15¾
Islands, fine	.16 @	.16½
Centrals—		
Central, scrap	.14½@	.14⅝
Esmeraldas	.14½@	.14⅝
Gunyule, washed and dried	.16	
Balata—		
Block, Colombia	Nominal	
Block, Cuidad	Nominal	

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers		
Spot	8¾@	8¾d
May	8¾@	8¾d
June	8⅝@	8¾d
July-Aug.	8⅞@	9 d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers		
Spot	8¾@	8½d

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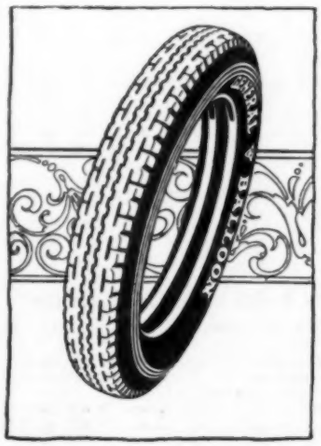

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LATE RUBBER CHEMICAL PRICES

Accelerators—Colors—Softeners—Compounding Materials

NEW YORK, MAY 21, 1928

A FEW more accelerators have fallen in line and made slight reductions to meet the new guanidine prices. A comparison of present quotations on organics compared with those of several months ago reveals many material savings now available to rubber manufacturers. According to leading factors in the field, the volume of accelerators used today is greater than ever before. Other materials such as blacks, colors, anti-oxidants and reinforcing pigments are firm in price and are moving in steady volume. Rubber factories in general are running at high production levels and are expected to continue so for some time. Current quotations follow:

ACCELERATORS

Organic				
A-7	lb.	.55	@	.59
A-11	lb.	.62	@	.66
A-16	lb.	.57	@	.61
A-19	lb.	.58	@	.62
A-20	lb.	.64	@	.68
Aero-X	lb.	.75	@	—
Aldehyde ammonia, crystals	lb.	.65	@	.70
Aniline oil, drums, f.o.b. works	lb.	.15	@	.16¼
Crylene	lb.	.55	@	.65
paste	lb.	.45	@	.55
Di-Ortho-Tolylguanidine	lb.	.48	@	.50½
Diphenylguanidine	lb.	.40	@	.42½
Ethylidene aniline	lb.	.45	@	.47½
Formaldehyde Aniline, 140° m. p.	lb.	.33	@	.35½
Formaldehyde Aniline, 60° m. p.	lb.	.31	@	.33½
Grasselerator 102	lb.	.62½	@	.67½
Grasselerator 552	lb.	4.45	@	4.60
Grasselerator 808	lb.	1.05	@	1.35
Grasselerator 833	lb.	1.50	@	1.75
Heptene	lb.	.45	@	.55
Hexamethylene-tetramine	lb.	.57½	@	.60
Lithex	lb.	.18	@	.20
Methylenedianilide	lb.	.37	@	.39
Monex	lb.	3.25	@	—
Oynone	lb.	.68	@	.80
Para-Nitrosodimethylaniline, f.o.b. works	lb.	.92	@	.96
Piperidine-Piperidyldithio-Carbamate	lb.	4.45	@	4.60
R & H 40	lb.	.40	@	.42½
R & H 50	lb.	.40	@	.42½
R & H 397	lb.	.75	@	.77½
Safex	lb.	1.20	@	1.25
Tensilac, No. 39	lb.	.50	@	.52½
Tensilac, No. 41	lb.	.50	@	.52½
Thermlo F	lb.	.50	@	.55
Thiocarbanilide, drums	lb.	.25½	@	.26½
Thionex	lb.	3.25	@	—
Trimene	lb.	.75	@	—
base	lb.	1.20	@	—
Triphenylguanidine	lb.	.65	@	.70
Vulcanex	lb.	.68	@	—
Vulcone	lb.	.68	@	—
Vulcanol	lb.	1.03	@	1.08
Waxene	lb.	.30	@	.32
Z 88	lb.	.65	@	.69
Inorganic				
Lead, sublimed blue	lb.	.08¼	@	.08¾
Lead, white	lb.	.10¼	@	.12½
Litharge, domestic	lb.	.09	@	.09¼
Magnesia, calcined, light	per 100 lb.	5.35	@	5.45
heavy	per 100 lb.	3.65	@	3.75

COLORS

Blacks (See Compounding Materials)				
Blues				
Prussian	lb.	.33	@	.35
Ultramarine	lb.	.06	@	.30
Browns				
Sienna, Italian	lb.	.05	@	.12½
Umber, Turkey	lb.	.04½	@	.07
Greens				
Chrome, light	lb.	.27	@	.31
medium	lb.	.29	@	.32
dark	lb.	.31	@	.34
Chromium Oxide, bbl.	lb.	.34	@	.36
Reds				
Antimony crimson, 15/17	lb.	.44	@	.50
sulphur free	lb.	.50	@	.55
golden 15/17 F.S.	lb.	.18	@	.22
Indian English	lb.	.08	@	.12
Domestic (Maroon)	lb.	.08	@	.12
Oximony	lb.	.13¼	@	—
Red oxide, pure	lb.	.10	@	.12
Venetian red	lb.	.03	@	.06
Vermillion, quicksilver, English	lb.	1.85	@	1.95
Whites				
Lithophone, Akcolith	lb.	.05 3/5	@	.06
Lithophone, Azolith	lb.	.05¼	@	.05¾
Lithopone, Vanolith	lb.	.05¾	@	—
Titanox	lb.	.10	@	.10½
Cal. Base Pigment	lb.	.10	@	.10½
Zinc Oxide—American Process				
American Azo:				
ZZZ (lead free)	lb.	.06½	@	.07
ZZ (leaded)	lb.	.06⅝	@	.07⅛
Zinc Oxide—French Process				
White seal	lb.	.11⅞	@	—
Green seal	lb.	.10⅞	@	—
Red Seal		.09⅞	@	—
Yellows				
Chrome	lb.	.15½	@	.16½
Ocher, French medium	lb.	.03½	@	.06
domestic	lb.	.01⅝	@	.02

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85	@	24.50
Ammonia carbonate	lb.	.10½	@	.12
Asbestine	ton	14.75	@	18.00
Barium carbonate	lb.	.03½	@	.05
Barium Dust	lb.	.05	@	.06
Barytes southern off-color,	ton	12.00	@	18.00
Western prime white	ton	23.00	@	—
imported	ton	27.00	@	36.00
Basofor	lb.	.04½	@	—
Blacks				
Arrow "Aerfloted"	lb.	.08	@	.12
Bone Black	lb.	.05½	@	.11
Carbon, compressed	lb.	.07½	@	.11½
Carbon, uncompressed	lb.	.07	@	.11
Drop Black	lb.	.06	@	.10
Lamp Black	lb.	.12	@	.40
Micronex	lb.	.08	@	.12
Velvetex carbon	lb.	.04	@	.07
Blanc fixe dry f.o.b. works	lb.	.04¼	@	.04½
Carrara filler	lb.	.01¾	@	.02
Catalpo (fact.)	lb.	.02	@	—
Chalk	ton	12.00	@	14.00
Clay, China, domestic	ton	8.00	@	9.00
Aerfloted Suprex	ton	9.00	@	20.00
Mineral Flour, c. l. fob mine	ton	20.00	@	23.00
Tensulite		15.00	@	—
Glues, extra white	lb.	.22	@	.26
medium white	lb.	.20	@	.24
Magnesia, carbonate	lb.	.03½	@	.11
Mica, powdered	ton	65.00	@	80.00
Rotten Stone (powdered)	lb.	.02½	@	.04½
Soapstone, powdered	ton	15.00	@	22.00
Starch, powdered	cwt.	3.30	@	3.70
Talc, domestic	ton	12.00	@	15.00
Velvetex	lb.	.04	@	.07
Whiting, commercial	cwt.	.85	@	1.00
English cliffstone	cwt.	1.50	@	—
Superfine	ton	10.00	@	12.00
Witco	ton	12.00	@	—
Wood pulp XXX	ton	45.00	@	—
Wood pulp X	ton	25.00	@	—
Zinc Carbonate	lb.	.09½	@	.10½
Zinc Stearate	lb.	.18½	@	.19½

MINERAL RUBBER

Genasco (factory)	ton	50.00	@	52.00
Montezuma, solid	ton	28.00	@	36.00
Montezuma, granulated	ton	32.00	@	42.00
Paradura	ton	62.50	@	65.00
Pioneer, MR, solid	ton	42.00	@	45.00
Pioneer-granulated	ton	52.00	@	55.00
Robertson, MR, solid	ton	24.00	@	80.00
M.R. (gran)	ton	38.00	@	80.00

SOFTENERS

Acids				
Nitric, 36 degrees	cwt.	5.00	@	5.25
Sulphuric, 60 degrees	ton	10.50	@	11.50
66 degrees	ton	15.00	@	16.00
Tartaric, crystals	lb.	.35	@	.36
Acids, Fatty				
Stearex	lb.	.10	@	.14
Stearic, double pressed	lb.	.11½	@	.12½
Alkalies				
Caustic soda, 76%	cwt.	3.76	@	3.91
Soda ash, 58% C.L.	cwt.	1.40	@	
Oils				
Corn, refined, bbls.	lb.	.11	@	.11½
Cottonseed, crude		.08½	@	.08¾
Cycline	gal.	.27	@	.34
Degras (c.l. 100 bbls.)	lb.	.03¾	@	—
Less c. l. (10-25 bbls.)	lb.	.04	@	—
Lots less than 10 bbls.	lb.	.04¼	@	.04½
Fluxrite	lb.	.05	@	.06
Hexalin	lb.	.60	@	—
Acetate	lb.	.70	@	—
Linseed, Raw C.L. bbl.	lb.	.09½	@	.10
Palm Lagos	lb.	.07¼	@	.07½
Niger	lb.	.07¾	@	.08
Vansulol	lb.	.10½	@	—
Para-Flux	gal.	.17	@	—
Peanut, domestic, crude	lb.	.12	@	.12¼
Petrolatum, white	lb.	.08¾	@	.09
dark amber	lb.	.03¾	@	.03½
Pine, steam distilled	lb.	.70	@	
Rapeseed, refined	gal.	1.04	@	1.06
Rosin, grade K, 280 lb. bbl.		9.65	@	—
second rectified	gal.	.58	@	—
Resins and Pitches				
Pitch, Burgundy	lb.	.06½	@	.07½
coal tar	gal.	.05½	@	.06
pine, 200 lb. gr. wt.	bbl.	9.00	@	10.00
Rosin, grade K, 280 lb. bbl.		9.65	@	—
Pigmentar	gal.	.33	@	.41
Tar Retort, 50 gal.	bbl.	12.50	@	13.00
Solvents				
Acetone, pure	lb.	.13	@	
Alcohol denatured, No. 1 bbls.	gal.	.37½	@	.44½
Benzol, 90%	gal.	.28	@	—
Carbon bisulphide	lb.	.05½	@	.06¼
Carbon tetrachloride	lb.	.06¼	@	.07
Motor gasoline, steel bbls.	gal.	.17	@	—
Naptha, solvent	gal.	.35	@	.40
Turpentine, spirits	gal.	.60	@	.64
wood	gal.	.50	@	.54
Waxes				
Beeswax	lb.	.56	@	.58
Carnauba	lb.		@	.50
Ceresin, white	lb.	.10	@	.11
Montan, crude	lb.	.07	@	.07½
Ozokerite, black	lb.	.24	@	.25
green	lb.	.26	@	.30
Miscellaneous				
RSL Mold Solution	gal.	.75	@	1.00

ANTI-OXIDANTS

Antox	lb.	.79	@	.83
Neozone	lb.	.74	@	—
Oxynone	lb.	.68	@	.80
Resistox	lb.	.54	@	.57
Stabilite	lb.	.65	@	—
VGB	lb.	.55	@	.66

SUBSTITUTES

Black	lb.	.08	@	.14
White	lb.	.10	@	.16
Brown	lb.	.08	@	.15

VULCANIZING INGREDIENTS

Sulphur Chloride (drums)	lb.	.03½	@	.06
Sulphur flour,				
Superfine bags	cwt.	2.20	@	2.80
Superfine, bbls.	cwt.	2.55	@	3.10
100% pure, refined, bags	cwt.	2.60	@	3.15
bbls.	cwt.	2.95	@	3.50

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

THE imports of crude rubber during April at the ports of New York and Boston, as shown below, are probably well below the grand total for the month, which is now estimated at 37,240 tons. An increasingly larger tonnage is coming into the country via Pacific coast ports now that the California plants of the chief consumers are practically all in operation.

Consumption during last month totaled 32,772 tons, which while lower than for the three previous months of the year, indicates that factories are continuing on fairly heavy schedules. The consumption figure for the first quarter of the year, based upon the compilation of the Rubber Association of America, but brought up to equal 100 per cent, is the highest for any similar period since the second quarter of 1925.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available. The section accordingly affords the most up-to-date, complete and convenient statistical service in the industry.

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The market prices in both New York and London have shown steadiness during the last two weeks and have apparently settled around 18½ cents. Deviations from the price levels, day by day, have been trivial.

The statistical position of crude rubber has somewhat improved and stocks on hand in the United States, London, Singapore and Penang, which are the usual indexes in this case, have all shown a reduction during the fortnight. The high consumption figure in March is reflected in the increased production reported for that month in automobile casings and inner tubes.

Latest figures covering imports and exports in the leading consuming and producing markets are included in the appropriate tables in this section.

U. S. Imports and Exports of Crude Rubber

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,637	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	425,142	338,998,697	35.59	27,775	24,735,488	39.77	403,472
1926:							
Jan.	42,404	72,528,151	76.36	2,084	3,747,505	80.28	40,320
Feb.	32,865	58,733,370	79.78	1,430	2,280,168	71.17	31,435
Mar.	42,152	70,589,581	74.76	1,836	2,735,234	66.51	40,316
Apr.	34,544	48,742,539	62.99	1,128	1,605,093	63.58	33,416
May	29,756	36,896,080	55.35	1,052	1,558,987	66.17	28,704
June	24,900	34,498,561	61.85	1,105	1,371,217	55.41	23,795
July	35,820	33,061,470	41.20	1,554	1,743,854	50.09	34,266
Aug.	27,400	24,670,752	40.21	1,318	1,339,563	45.38	26,082
Sept.	37,112	32,625,032	39.02	1,437	1,519,870	47.20	35,675
Oct.	29,333	25,300,483	38.50	1,366	1,316,270	43.02	27,967
Nov.	38,925	34,661,631	39.97	1,482	1,320,461	42.00	37,443
Dec.	37,754	33,261,366	39.33	1,904	1,841,305	43.16	35,850
1927:							
Jan.	43,340	36,753,719	37.99	1,526	1,444,734	42.22	41,814
Feb.	28,338	23,110,257	36.41	2,451	2,277,297	41.47	25,887
Mar.	35,514	28,693,026	36.07	2,763	3,249,665	52.50	32,751
Apr.	46,202	37,284,806	36.15	1,575	1,428,425	40.45	44,627
May	36,543	30,998,657	37.87	2,782	2,501,562	41.74	33,761
June	33,045	27,838,770	36.28	1,775	1,550,592	38.99	31,270
July	37,678	31,678,259	37.53	1,958	1,560,853	35.58	35,720
Aug.	32,810	26,396,904	36.59	1,809	1,382,768	34.49	31,001
Sept.	33,301	23,852,857	33.73	3,500	3,036,929	34.91	29,801
Oct.	30,184	22,163,044	32.77	2,513	2,042,713	36.29	27,671
Nov.	38,113	27,039,129	31.67	2,468	2,014,196	36.43	36,123
Dec.	30,696	22,183,601	32.26	2,654	2,245,754	37.77	28,042
1928:							
Jan.	39,108	30,278,444	34.56	1,988	1,734,990	38.95	37,552
Feb.	33,094	27,309,598	36.84	2,738	2,229,589	36.34	30,356
Mar.	40,644	32,071,990	35.23	3,718	2,587,434	31.07	36,926
Apr.*	31,037	22,193,282	31.92				
May							
June							
July							
Aug.							
Sept.							
Oct.							
Nov.							
Dec.							

*Official estimates based on arrivals at New York and Boston.

U. S. Consumption of Crude Rubber

(Rubber Association of America statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1921	1922	1923	1924	1925	1926	1927	1928
Jan.	5,045	16,938	30,106	29,058	29,638	32,196	31,518	34,403
Feb.	5,955	14,767	30,149	25,736	29,761	31,136	30,137	33,702
Mar.	9,190	21,408	36,629	28,385	33,498	32,936	36,141	35,688
Apr.	13,084	19,294	29,085	27,129	34,139	32,696	35,871	32,772
May	16,023	23,246	36,155	25,845	35,322	29,364	34,592	
June	16,142	31,713	24,272	22,753	35,822	28,598	33,801	
July	18,310	24,522	17,685	23,396	36,053	27,577	29,219	
Aug.	23,649	29,361	20,359	28,982	35,909	34,533	33,460	
Sept.	16,705	24,410	17,594	31,497	31,691	32,904	27,214	
Oct.	16,814	26,881	21,321	31,520	29,047	29,836	26,790	
Nov.	14,105	24,950	20,437	27,289	28,853	28,080	26,792	
Dec.	15,482	25,070	21,902	27,199	28,748	26,293	25,492	
Totals	170,504	282,560	305,694	328,769	388,481	366,149	371,027	

Figures on Quarterly Basis

Quarter	1921	1922	1923	1924	1925	1926	1927	1928
Jan./Mar.			96,776	87,609	95,263	94,301	99,216	103,558
Apr./June	65,463	127,360	89,493	75,674	104,099	87,109	103,242	
July/Sept.			55,621	83,813	99,493	93,793	89,210	
Oct./Dec.	105,962	155,067	63,617	92,656	85,789	88,212	80,860	
Totals	171,425	282,427	305,507	339,752	384,644	358,415	372,528	103,558

Note—The Rubber Association estimates its monthly rubber consumption figures to be 90 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

Rubber Invoiced to the U. S.

(Reported by American Consuls—Quantities in Long Tons)

During the Week Ended	From Br. Malaya	From Ceylon	From Dutch East Indies	From London & Liverpool	Total
March 10	4,789	685	1,376	1,951	8,801
March 17	3,981	487	1,463	1,856	7,787
March 24	4,253	409	1,266	2,323	8,251
March 31	2,652	528	1,028	776	4,984
April 7	3,061	718	1,381	882	6,042
April 14	3,097	606	1,585	209	5,497
April 21	4,190	42	1,215	2,535	7,982
April 28	2,498	484	895	739	4,616
May 5	4,220	652	1,464	1,177	7,513
May 12	2,797	331	1,374	785	5,287

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1925																																
August	94½	—	96⅞	88¾	86¾	86¾	81⅝	79	—	71¾	72⅜	76½	81⅛	80¾	77⅜	—	78¾	80½	80¾	83½	82½	82½	—	82	82½	85¾	85¾	87¼	91½	90	88
September	88¼	87⅛	85	81¼	85¾	81¼	—	78¾	80⅞	83	86½	92	92	92⅝	93¾	93¾	92⅝	92⅝	94¾	—	92	93¼	93½	90	89	89¾	91¼	91¼	—	—	88⅞
October	91¼	91⅛	92	—	94½	87	97½	99	—	99¾	101	—	97⅞	96½	97	99¾	99	99	99	101⅛	102	99¼	99¼	99	98	99½	99¾	101½	99¼	100¾	98
November	—	99⅜	—	98¾	98¼	100	—	98½	99½	100¼	101¾	104⅞	105½	—	101	—	109	107	107	109¾	110⅜	110½	110½	109	106¼	—	108¾	108¾	107	104¾	104¾
December	106¾	108½	107¾	107¼	108¼	—	108	109	109¾	106	105½	105½	—	101	—	99¼	90¼	93	88¼	86¾	—	88¼	88¾	88¾	—	—	—	91	93	91¾	91¼	98½
1926																																
January	—	—	—	87	87¼	85½	86½	87½	—	88¼	88¼	88¼	88¼	85½	84½	82½	75½	75½	75½	75½	75	72	72½	—	68	66½	67	69¼	70½	69	—	79½
February	67	67½	—	66¾	68	—	—	67	67	65	66	66	66	65½	63	60½	60	60	60	63	—	56	61	62	62	51¾	51	—	—	—	—	63¾
March	58	58	—	59	59¾	59¾	61¼	61	61	60	60	61	61½	62	60½	61	62	61	61	61½	61	61	61	60	60	59¾	60	59½	58½	58	59
April	59	—	—	59	50¾	49¾	49¾	49¾	53	53	49	—	51½	48¾	47¾	48½	47	47	47½	47½	48	48½	49	48	48	46	48	48	48¾	—	51¼
May	48½	—	—	50	49¾	49¾	49¾	49¾	49	49	—	49¼	—	49¼	47¾	—	47½	48	48	—	47½	47⅛	46¾	—	46	46	45	46	42	—	47¼
June	46½	—	42	41¾	41½	—	41¾	42	43	43	42	43	43	42	43½	43	43	43	43	43	44	44	43½	43	44	42	42	42	42	—	42½
July	42	—	42	42	41½	—	41¾	41½	42	41½	42	41½	42	40	40	43	42	41½	41½	41½	41½	41	41½	41½	41	41½	41	41	39¾	39	41¼
August	—	38¾	40¾	37	37	37	38¾	40¾	40	40¾	41½	42	42	40	40	40¾	40¾	40	39	39	39	39	39¾	42	39	39	39	41½	42½	40	39½
September	40¼	40¾	—	40¾	40¾	40¾	40	40¾	40	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40½	40½	41	41¾	42	42½	42¾	42	42¾	42½	41	41
October	43	43	—	43¼	42¾	42¾	42	42½	42½	42½	42½	42½	42½	42½	42½	42½	42½	42½	42½	42¾	42¾	42¾	42¾	42¾	42½	42½	42½	42½	42½	42½	42½
November	41¼	—	41	41¼	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½	41½
December	36¾	37½	37½	37½	37½	—	37	37	37	37	37	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½	37½
1927																																
January	—	37⅜	—	38½	39	39¾	39¾	40¾	40¾	40½	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
February	—	37⅜	—	38¾	37½	37½	—	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾	37¾
March	—	39¾	—	40	40¼	40¼	40¾	40¾	40¾	40¾	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼
April	—	41¼	—	41	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼	41¼
May	—	40½	—	41	41	41	41	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾	40¾
June	—	40¾	—	40¾	40¾	40¾	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½	39½
July	—	35½	—	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½
August	—	34	—	33¾	—	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾
Sept.	—	33¾	—	—	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾	33¾
Oct.	—	35	—	35¼	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½	35½
Nov.	—	40¼	—	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼	40¼
Dec.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1928																																
January	—	37¼	—	37¾	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞	37⅞
February	29	28⅞	—	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞	28⅞
March	—	27¼	—	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½	27½
April	—	17¼	—	17¾	18¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼
May	—	17½	—	17¾	18¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼	19¼

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1921

Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15
1911	141.30	1915	65.85	1919	48.70
1912	121.60	1916	72.50	1920	36.30
1913	82.04	1917	72.23	1921	16.56

Average Monthly Price per Pound Since 1922

Months	1922 Cents	1923 Cents	1924 Cents	1925 Cents	1926 Cents	1927 Cents	1928 Cents
Jan.	18.82	32.73	25.86	36.71	79.50	38.75	40.25
Feb.	16.12	35.14	25.29	36.01	62.25	38.25	32.75
Mar.	14.53	34.21	22.83	41.00	59.00	41.04	26.82
Apr.	15.99	32.48	22.51	43.64	51.25	40.86	18.97
May	15.25	27.39	18.89	58.47	47.75	40.76	
June	15.11	26.88	18.81	77.26	42.50	37.25	
July	14.67	26.10	22.16	103.16	41.03	34.44	
Aug.	13.98	25.84	26.17	82.99	38.50	35.12	
Sept.	14.44	28.95	27.56	88.88	41.00	33.67	
Oct.	19.78	26.93	31.13	98.01	42.50	34.32	
Nov.	23.88	27.14	34.33	104.80	38.50	37.58	
Dec.	27.42	26.60	37.88	98.51	38.25	40.63	
Average for Year	17.50	29.45	26.20	72.46	48.50	37.72	

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Sixth Restriction Year—Third Quarter

Day	May	June	July	Day	May	June	July
1	8¼			17	8⅝		
2	8⅜			18	8⅝		
3	8⅝			19			
4	8¾			20			
5	8¾			21			
6	—			22			
7	8¾			23			
8	8¾			24			
9	9¼			25			
10	8¾			26			
11	8⅞			27			
12	8⅞			28			
13	—			29			
14	8¾			30			
15	8⅞			31			
16	8¾						

(The average price for the period for which daily prices are reported above is approximately 8.719 pence. The British Colonial Secretary has announced that only 60% of the standard production will be exportable from the restricted area during the next quarter if the price during the entire current quarter does not average at least 21 pence.)

Average Price in Previous Quarters

Quarter	1922-23	1923-24	1924-25	1925-26	1926-27	1927-28
Nov.-Jan.	14.285	14.175	17.9983	46.709	19.265	19.023
Feb.-Apr.	16.858	12.917	19.356	28.103	19.696	12.591
May-July	14.242	10.947	38.469	21.001	18.165	
Aug.-Oct.	14.944	14.632	43.269	20.199	16.620	

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	Apr. Cents	May Cents	Day of Month	Apr. Cents	May Cents	Day of Month	Apr. Cents	May Cents
1	——	22.30	11	20.20	22.05	21	20.60	——
2	19.95	22.00	12	20.20	21.85	22	——	——
3	19.80	21.35	13	20.45	——	23	20.65	——
4	19.85	21.35	14	20.50	21.55	24	20.90	——
5	18.95	21.40	15	——	21.75	25	21.30	——
6	——	——	16	20.35	21.55	26	21.60	——
7	——	21.95	17	20.55	21.95	27	21.85	——
8	——	21.95	18	20.50	21.70	28	21.75	——
9	20.30	21.85	19	20.50	——	29	——	——
10	20.10	21.95	20	20.45	——	30	22.15	——
						31	——	——

Average Monthly Price Per Pound

Month	1926 Cents	1927 Cents	1928 Cents	Month	1926 Cents	1927 Cents	1928 Cents
Jan.	20.85	13.42	19.12	Aug.	18.57	20.04	
Feb.	20.60	14.10	18.40	Sept.	17.02	21.95	
Mar.	19.35	14.32	19.38	Oct.	13.14	20.55	
Apr.	19.13	14.75	20.63	Nov.	12.86	20.22	
May	18.92	16.07		Dec.	12.68	19.58	
June	18.57	16.85		Average for Year	17.53	17.49	
July	18.71	18.00					

Stock of Crude Rubber in the U. S.

(All Quantities in Long Tons)

At	ON HAND			AFLOAT			ON HAND AND AFLOAT		
End of	1926	1927	1928	1926	1927	1928	1926	1927	1928
Jan.	55,198	76,172	110,244	46,296	45,312	41,256	100,434	121,484	151,500
Feb.	58,035	91,186	108,955	46,935	42,166	43,316	104,970	133,352	152,271
March	61,822	85,740	114,061	43,567	49,600	39,324	105,389	135,340	153,385
April	55,261	92,757	113,083	41,905	38,963	33,986	97,166	131,720	147,069
May	64,360	94,563		40,303	44,181		104,663	138,744	
June	60,460	89,250		40,907	47,233		101,367	136,483	
July	64,900	98,469		38,062	40,587		102,962	139,056	
Aug.	60,870	96,148		37,360	40,937		98,230	137,085	
Sept.	62,078	97,829		42,464	37,966		105,542	135,795	
Oct.	64,089	97,452		52,930	42,804		117,919	140,256	
Nov.	69,385	101,034		47,311	37,076		116,696	138,110	
Dec.	72,520	100,130		52,020	47,938		124,540	148,068	

(Rubber Association of America figures raised to 100%.)

Stock of Crude Rubber in London

(No. of tons in Wharves and Warehouses, including Latex)

At end of:	1920	1921	1922	1923	1924	1925	1926	1927
Jan.	19,300	56,573	67,252	73,498	57,460	27,172	9,994	54,994
Feb.	18,329	59,439	67,623	70,483	56,732	23,425	10,004	58,826
Mar.	18,969	63,913	66,670	63,438	55,647	18,104	13,127	63,055
Apr.	20,072	68,759	68,637	58,770	54,559	12,949	18,773	66,897
May	20,921	70,403	70,146	54,439	51,615	5,895	20,384	67,169
June	22,517	69,408	71,597	51,050	51,115	5,318	23,984	63,902
July	25,346	71,065	71,515	49,937	52,073	4,258	27,727	63,717
Aug.	30,674	73,211	72,112	58,427	49,700	4,619	30,165	64,491
Sept.	35,504	72,175	70,977	54,523	44,011	5,453	35,077	63,236
Oct.	41,743	69,229	68,536	58,891	37,523	5,086	42,138	69,569
Nov.	45,550	70,786	68,548	60,074	33,593	3,869	44,057	67,050
Dec.	50,652	69,792	72,299	60,246	29,488	5,697	48,918	63,793

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1927					
July	63,917	64,163	63,511	62,819	63,626
August	64,177	64,557	64,842	64,259	
September	65,162	66,148	66,664	67,253	
October	68,519	70,167	70,916	70,060	69,551
November	69,660	69,501	69,850	67,318	
December	65,869	66,011	64,761	63,397	63,207
1928					
January	64,360	65,524	65,450	66,285	
February	65,909	64,945	63,769	63,103	
March	61,978	61,920	61,033	59,644	58,197
April	58,732	58,945	56,819	53,360	
May	52,015	50,837			
June					

Rubber in Singapore and Penang

(Stocks held by Dealers—Quantities in Long Tons)

End of	1926	1927	1928	End of	1926	1927	1928
Jan.	16,726	25,440	25,868	July	23,101	22,558	
Feb.	13,653	26,766	22,867	Aug.	23,362	25,764	
Mar.	18,389	27,844	20,538	Sept.	25,997	25,178	
Apr.	16,328	24,543	16,946	Oct.	26,614	25,790	
May	16,967	25,133		Nov.	25,486	28,369	
June	19,416	21,898		Dec.	26,443	25,798	

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1922	16,297,735	0.0	1925	26,001,664	66.8
1923	23,140,620	0.6	1926	24,199,524	78.8
1924	21,863,311	19.7	1927	19,700,003	79.1
1927			1928		
July	1,679,587	84.4	January	1,811,534	87.8
August	1,825,905	80.2	February	1,806,437	86.5
September	1,727,122	77.7	March	2,420,084	86.4
October	1,354,924	81.4	April		
November	838,591	67.8	May		
December	1,134,421	80.0	June		

U. S. Consumption of Gasoline

(In Barrels of 42 Gallons)

MONTHS	1924	1925	1926	1927	1928
January	11,918,000	14,386,000	17,582,000	17,888,000	20,939,000
February	9,626,000	13,210,000	15,814,000	18,240,000	21,136,000
March	10,961,000	14,890,000	19,302,000	22,464,000	24,041,000
April	14,583,000	19,013,000	20,848,000	23,371,000	
May	15,889,000	20,459,000	24,213,000	26,579,000	
June	16,421,000	20,724,000	23,803,000	27,799,000	
July	18,610,000	22,879,000	24,752,000	29,784,000	
August	19,825,000	22,323,000	26,912,000	29,779,000	
September	16,871,000	20,177,000	22,929,000	28,409,000	
October	18,029,000	19,826,000	23,973,000	25,497,000	
November	16,607,000	18,024,000	20,618,000	24,400,000	
December	15,663,000	17,954,000	21,419,000	23,718,000	
TOTAL	185,003,000	223,865,000	262,165,000	297,928,000	

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1922	1923	1924	1925	1926	1927
Production	40,932	45,259	51,633	60,845	61,237	64,439
Shipments	39,987	45,204	50,120	59,262	59,062	64,059
Inventory[2]	6,132	5,772	7,427	8,142	10,456	10,264

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1926	1927	1928	1926	1927	1928	1926	1927	1928
Jan.	4,587	4,965	5,491	2,974	4,932	5,394	9,947	10,432	9,949
Feb.	4,865	5,095	6,363	3,436	4,458	5,031	11,164	11,075	11,721
Mar.	5,456	6,276	6,819	4,561	5,701	5,731	12,004	11,583	12,389
Apr.	5,346	6,299		4,980	5,701		12,461	12,129	
May	5,023	6,151		5,211	5,657		12,343	12,462	
June	5,422	6,202		5,724	6,253		11,968	12,462	
July	4,950	5,087		6,337	5,973		10,592	11,326	
Aug.	5,872	5,752		6,744	6,393		9,732	10,721	
Sept.	5,706	4,822		6,040	5,717		9,318	9,722	
Oct.	5,103	4,773		4,544	4,799		9,917	9,665	
Nov.	4,324	4,502		3,733	4,306		10,297	10,136	
Dec.	4,683	4,497		4,718	4,165		10,456	10,264	

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1922	1923	1924	1925	1926	1927
Production	50,850	60,116	70,706	82,614	76,618	70,823
Shipments	49,673	59,072	68,016	81,004	71,591	72,896
Inventory[2]	7,643	8,425	11,052	11,313	16,200	13,692

Figures for Recent Months

	PRODUCTION			SHIPMENTS			INVENTORY		
	1926	1927	1928	1926	1927	1928	1926	1927	1928
Jan.	6,809	5,337	5,441	3,723	6,016	6,072	14,361	15,585	12,982
Feb.	6,825	5,658	6,895	3,736	5,120	5,431	17,090	16,075	14,650
Mar.	7,030	7,184	6,231	4,987	6,157	5,731	19,131	17,096	15,573
Apr.	6,554	7,373		5,051	6,359		20,674	17,801	
May	6,149	6,737		6,304	6,140		21,141	18,389	
June	6,171	6,306		6,898	6,832		20,243	17,858	
July	5,729	5,284		8,569	7,070		17,267	16,004	
Aug.	7,424	6,480		9,579	7,983		15,462	14,664	
Sept.	7,590	5,651		7,762	6,758		15,312	13,511	
Oct.	6,208	5,065		5,474	5,024		15,929	13,539	
Nov.	4,852	4,775		4,045	4,723		16,604	13,585	
Dec.	5,277	4,969		5,463	4,712		16,200	13,692	

(1) Rubber Association of America figures, raised to 100%. The Association estimates its figures to be 75% representative or complete when issued and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States			Canada			
	Total	Passenger Cars	Trucks	Total	Passenger Cars	Trucks	Grand Total
1921	1,595,304	1,452,902	142,402	66,246	61,098	5,148	1,661,550
1922	2,547,208	2,302,923	244,285	102,053	94,904	7,149	2,649,261
1923	4,020,255	3,631,728	388,527	146,438	129,228	17,210	4,166,693
1924	3,600,918	3,203,049	397,869	135,246	117,765	17,481	3,736,164
1925	4,265,704	3,760,459	505,245	161,389	139,311	22,078	4,427,093
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927							
Jan.	238,926	199,650	39,276	15,376	11,745	3,631	254,302
Feb.	304,758	264,171	40,587	18,655	14,826	3,829	323,413
March	394,430	345,911	48,519	23,250	19,723	3,527	417,680
April	404,743	357,009	47,734	24,611	20,890	3,721	429,354
May	404,099	357,148	46,951	25,708	21,991	3,717	429,807
June	321,959	278,728	43,231	19,208	16,470	2,738	341,167
July	268,474	236,866	31,608	10,987	8,719	2,268	279,461
Aug.	308,807	274,378	34,429	12,526	10,139	2,387	321,333
Sept.	260,420	226,440	33,980	11,262	8,681	2,581	271,682
Oct.	219,712	183,041	36,671	7,791	6,236	1,555	227,503
Nov.	134,381	109,742	24,639	6,617	5,173	1,444	140,998
Dec.	133,178	105,784	27,394	3,435	2,277	1,158	136,613
TOTAL	3,393,887	2,938,868	453,019	179,426	146,870	32,556	3,573,313
1928							
Jan.	225,039	199,032	26,007	8,463	6,705	1,758	233,502
Feb.	323,368	290,830	32,358	12,504	10,315	2,189	335,872
March	412,825	371,408	41,417	9,724	7,478	2,246	422,549
April							
May							
June							
July							
Aug.							
Sept.							
Oct.							
Nov.							
Dec.							

Exports of Crude Rubber from Principal Producing Countries

(Long Tons)

	BRITISH MALAYA[1]							DUTCH EAST INDIES[2]							
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[3]	India & Burma[4]	Sarawak[4]	British North Borneo[4]	Siam[4]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[5]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,955
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	517,523
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1926:															
Jan.	30,452	10,237	20,215	4,246	1,273	416	472	289	4,110	6,239	8,165	566	1,284	1,805	49,350
Feb.	30,449	8,306	22,184	5,120	725	488	450	253	4,524	5,717	6,854	554	2,759	1,978	51,556
Mar.	35,012	14,800	20,212	5,177	1,113	792	561	418	4,527	5,566	11,984	573	2,126	1,899	54,948
Apr.	23,727	10,565	13,162	3,766	590	679	374	293	4,226	4,598	6,285	410	2,318	1,529	38,230
May	31,231	10,604	20,627	3,944	691	927	410	279	4,440	5,358	8,737	502	1,353	1,464	48,732
June	30,624	11,764	18,860	4,208	452	779	512	275	4,444	6,125	10,614	549	1,213	1,279	49,310
July	28,824	15,280	13,544	4,422	938	911	498	439	4,618	5,612	13,112	1,521	1,565	1,148	48,328
Aug.	34,625	13,595	21,030	5,666	521	890	476	316	4,132	5,699	10,390	378	1,888	1,097	52,483
Sept.	35,913	13,972	21,941	6,015	651	888	589	457	4,065	6,568	11,391	681	2,156	822	56,824
Oct.	39,367	15,203	24,164	5,672	684	805	473	385	4,058	6,998	11,491	561	1,904	1,023	58,268
Nov.	34,302	12,201	22,101	4,228	1,110	685	547	285	3,988	5,816	9,422	718	1,911	1,259	52,070
Dec.	36,811	14,716	22,095	6,498	1,176	895	617	338	5,054	7,117	12,786	790	3,821	714	61,901
1927:															
Jan.	34,946	14,995	19,951	6,697	921	959	585	304	4,187	6,706	10,690	941	3,482	981	56,404
Feb.	27,528	11,697	15,831	3,571	1,469	552	445	360	4,078	6,526	10,535	675	2,104	1,098	47,244
Mar.	41,346	17,464	23,882	7,142	1,124	997	639	432	5,657	7,004	12,905	733	3,178	1,791	65,484
Apr.	29,041	13,069	15,972	3,349	723	984	452	526	4,666	5,531	10,197	557	2,451	1,520	46,928
May	31,393	15,491	15,902	3,124	760	786	415	348	5,430	5,529	13,410	586	2,460	1,207	49,957
June	32,607	14,706	17,901	3,348	856	1,100	539	409	4,818	5,518	9,109	772	889	1,731	46,990
July	23,947	12,697	11,250	4,018	827	859	544	333	4,771	6,142	11,566	519	1,757	1,113	43,699
Aug.	30,371	17,105	13,266	5,357	688	1,133	623	546	4,355	6,682	12,440	716	1,928	969	48,703
Sept.	29,835	12,095	17,740	4,911	479	645	566	498	3,635	5,957	9,853	497	2,072	1,213	48,066
Oct.	29,846	15,801	14,045	5,245	802	721	591	542	3,810	7,755	13,633	775	2,752	939	51,520
Nov.	28,277	19,860	8,417	4,464	1,277	1,241	591	600	4,127	6,587	14,395	683	2,369	1,627	46,378
Dec.	32,185	17,865	14,320	4,130	1,395	946	592	664	5,763	7,878	13,438	1,191	3,340	1,444	55,101
1928:															
Jan.	27,731	16,618	11,113	4,352	1,605	842	500*	525	4,851	7,988	11,360	720	2,273	1,200*	47,329*
Feb.	28,813	12,911	15,902	4,353	1,081	667	500*	536	4,052	6,757	8,635	723	1,612	1,200*	46,018*
Mar.	27,813	10,508	17,305	3,460		645	500*	269	3,999	5,826	9,690	613	2,750		

(1) Mayalan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, and 3,263 in 1926. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, and about 20 tons in 1926. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, and about 60 tons in 1926. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Italy, Belgium and Netherlands. This figure includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown immediately it becomes available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States*	United Kingdom	France (h)	Germany	Canada (ac)	Japan (ac)	Italy	Russia (ce)	Australia (ed)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abed)	World Total
1919	236,977	42,671	17,685	5,584	6,395	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	342,378
1920	248,762	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	370,641
1921	179,678	42,087	15,135	21,920	8,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,562
1922	296,267	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	-3,807	1,778	589	567	395,885
1923	300,372	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	408,018
1924	317,747	-11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	-807	3,178	944	1,370	414,847
1925	381,815	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	516,493
1926	395,667	84,865	34,240	22,775	20,229	18,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	613,643
1926:															
January	40,345	6,886	2,832	703	2,188	892	760	332	438	76	163	303	89	134	56,141
February	31,435	3,114	3,063	1,113	1,865	741	1,041	643	512	143	88	397	145	75	44,375
March	40,316	8,907	3,941	1,342	2,079	864	1,037	852	547	129	227	377	109	161	60,868
April	33,416	8,275	4,121	1,781	1,615	1,868	865	402	505	71	93	335	130	193	53,670
May	28,705	6,773	2,519	1,848	1,239	1,010	705	200	468	186	241	225	60	192	44,371
June	23,795	5,894	2,196	1,655	1,188	1,465	1,070	983	636	269	215	303	123	103	39,895
July	34,266	6,768	2,352	2,202	1,552	1,447	800	132	702	295	480	292	121	115	51,524
August	26,081	7,327	2,457	2,110	1,885	1,284	796	655	1,275	303	594	336	90	151	45,347
September	35,675	8,843	1,774	2,029	1,355	1,922	819	472	1,241	283	429	317	91	138	55,388
October	28,110	8,082	3,376	2,423	1,865	2,396	645	585	1,004	301	2	360	100	121	49,376
November	37,673	9,247	2,719	3,007	1,548	3,380	832	568	916	194	-18	358	90	181	60,695
December	35,850	4,749	2,890	2,562	1,847	856	439	725	777	248	156	443	151	306	51,999
1927:															
January	41,815	10,192	3,284	2,481	1,936	1,227	672	803	929	296	192	316	139	100	64,382
February	25,886	7,692	3,263	3,103	2,620	1,902	601	907	460	502	152	336	146	210	47,780
March	32,752	9,049	2,050	3,475	3,760	1,578	852	784	780	454	86	385	137	127	56,269
April	44,627	7,875	2,310	2,393	1,509	2,181	781	1,972	762	448	58	230	177	218	65,541
May	33,736	2,896	2,006	3,380	2,519	1,084	918	887	694	626	-57	335	155	223	49,402
June	31,270	2,282	2,387	3,632	2,086	798	942	1,506	557	583	-17	243	164	183	46,616
July	35,719	1,116	2,384	2,899	2,104	1,505	1,007	415	900	429	66	227	177	236	49,184
August	31,001	3,463	2,795	3,119	2,013	1,970	1,274	386	650	604	-63	312	138	123	47,785
September	29,801	7,800	1,956	2,891	1,850	2,025	684	518	772	552	-33	451	155	272	49,694
October	27,671	5,888	3,479	4,202	1,790	1,966	1,021	1,075	908	465	156	401	153	363	49,538
November	36,123	1,687	3,661	4,209	1,916	1,575	1,167	1,312	836	749	298	474	246	317	54,570
December	28,082	309	4,696	3,108	2,302	2,710	1,462	1,453	1,242	784	-202	514	268	300	47,028
	398,483	60,249	34,271	38,892	26,405	20,521	11,381	12,018	9,490	6,492	636	4,224	2,055	2,672	627,789
1928:															
Jan.	37,552	1,921	1,764	2,485	2,290	1,361	546	572	802	589	52	261	335	376	50,906
Feb.	30,926	3,143	2,526	2,984	2,553	1,268			616	599	98	307		297	
Mar.	36,970	3,179		3,521							95				

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—United Kingdom exports to Russia, and beginning with October, 1927, exports from the United States to Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. *United States imports of guayule are not included in this compilation: such imports amounted to 4,305 tons in 1926 and to 5,019 tons in 1927.

BOOK REVIEWS

GATES VULCO FAN BELT AND RADIATOR HOSE GUIDE. Published by the Gates Rubber Company, Denver, Colo. 1928.

The 1928 edition of the Fan Belt Guide, which makes its annual appearance from the plant of the Gates Rubber Company, is a valuable handbook on the subject of belt and radiator hose requirements. The present book is the twelfth annual edition. It is distributed by the Gates company to 140,000 jobbers, jobbers' salesmen and dealers. A feature of this year's effort is the special edition published in French for distribution in the French Canadian territory.

THE USE OF RESEARCH IN DEVELOPING FOREIGN TRADE. No. 3 of a Series of Reports on Applying Research to Sales. Part of a Study of Better Business Through Research in New England Industry. Prepared for the Research Committee of the New England Council by the Policyholders Service Bureau of the Metropolitan Life Insurance Company.

This pamphlet is a brief study of research methods as applied to actually developing foreign markets. Among the rubber company executives quoted in reviewing various examples of export selling are H. A. Behre, export manager of the Davol Rubber Company, Providence, R. I.; S. N. Nason, manager of exports, Hood Rubber Products Company, Watertown, Mass.; W. C. Hatton, of the Seamless Rubber Company, New Haven, Conn.; and C. J. Mooney, export sales manager of the Firestone-Apsley Rubber Company, of Hudson, Mass.

THE RUBBER CRISIS. By P. E. Gourju and Hargreaves Parkinson. Published by the London General Press, London, 1928. 23 pp.

This pamphlet is a carefully prepared analysis of the rubber situation as it stood on the eve of the recent British government announcement abolishing restriction. In attempting to reach some solution for the problems of the industry the authors have been lead to defend the restriction policy and advocate the continuance of some "reasoned policy designed to cover periods from seven to ten years ahead, and crises of over- and under-production." But the difficulties of such a policy is well realized in the light of the diversified rubber growing interests and the fact that the British and Dutch policies are at such variance as regards the question of cooperation. In spite of the fact that the recent action of the British throws this booklet more or less into the discard, the treatise is a scholarly treatment of the crude rubber situation as of April 1 last.

ANNUAL INDUSTRIAL ACCIDENT EXPERIENCE OF MEMBERS. NATIONAL SAFETY COUNCIL, 1927. Published by the National Safety Council, Chicago, Ill. 48 pp.

This annual analysis of industrial accidents takes the form of a tabulation of reports from 2,089 establishments, classified into 16 industrial groups. The analysis enables each establishment to compare its own record with the record of other establishments in the same line of business. The report should also convince skeptics that accidents can and have been reduced in industrial plans through such organized and well directed efforts as have been the work of the National Safety Council.

All calculations in the tables are based upon the standard plan approved by the U. S. Bureau of Standards, National Safety Council, and the International Association of Industrial Accident Boards and Commissions.

In the section devoted to tabulations of accidents within the rubber manufacturing industry the grand total of days lost during 1927 is set down as 150,585 days, representing a decided drop from the total of 206,825 days lost during 1926, but the accident frequency rate climbed up during last year to 38.41 from 30.09 in 1926.

Among the establishments reporting their accidents to the National Safety Council were 4 footwear companies, 16 tire manufacturers and 21 other rubber goods manufacturers, a total of 41 establishments, representing an appreciable increase from the 32 reporting in 1926. Last year 65,541 employees worked 151,238,667 hours in the 41 reporting establishments. The 1927 ratio of non-fatal accidents to fatalities was 725. For the two previous years it had been 517 to 1.

As regards the grand total of all fatal accidents in the United States during 1927 the Council puts the figure at approximately 95,500, or 4 per cent more than in 1926.

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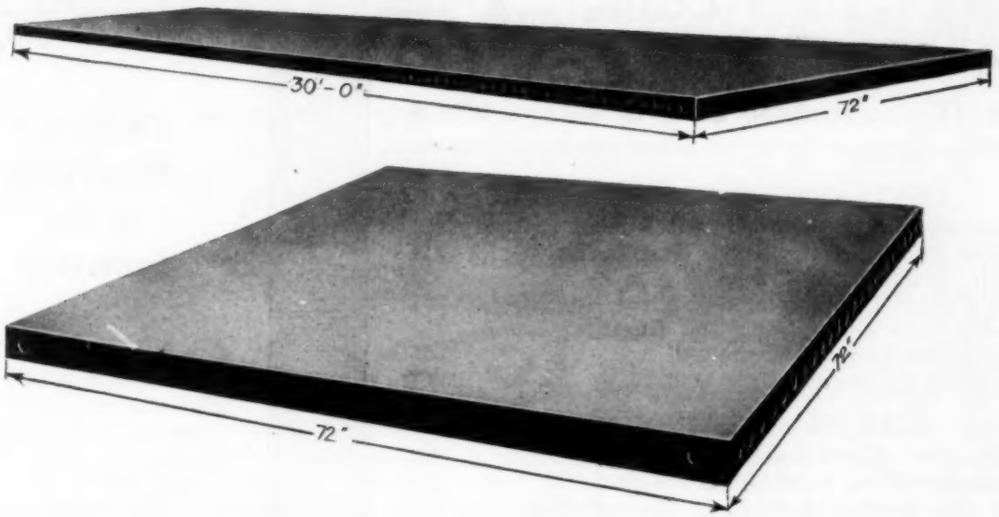

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